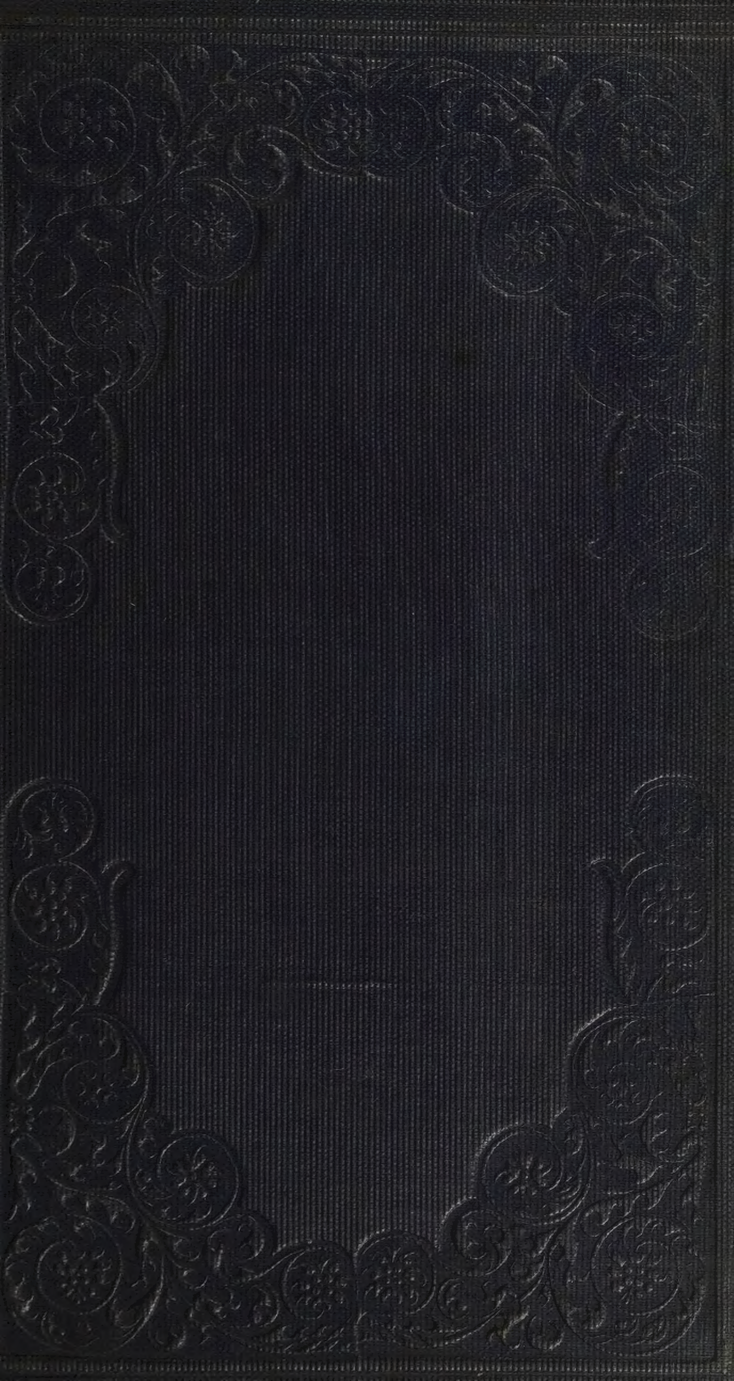

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VOL. LX, JULY—DECEMBER, 1869.

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THE

RETROSPECT OF MEDICINE:

BEING

A HALF-YEARLY JOURNAL,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND
PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

W. BRAITHWAITE, M.D.,

LATE LECTURER ON MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN
AT THE LEEDS SCHOOL OF MEDICINE, ETC.

AND

JAMES BRAITHWAITE, M.D. LOND.

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SYNOPSIS,

(ARRANGED ALPHABETICALLY), CONTAINING

A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THIS VOLUME, SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE HALF-YEAR.

AFFECTIONS OF THE SYSTEM GENERALLY.

FEVER.—*The Sulphites.*—The sulphites have had a very extensive trial in typhus fever, at the Dundee Fever Hospital. Out of 723 cases treated without sulphites the mortality was 1 in 10·3, and out of 161 cases treated by sulphites the mortality was 1 in 10. So that in actual practice the results are not what might have been expected from the success of Professor Polli's experiments on dogs. A case of typhus fever is not, however, a parallel case to that of an animal with a putrid fluid injected into its veins, for in the former the poison has done a great deal of its work unopposed, whilst in the latter it has, as it were, not obtained a footing in the system, its catalytic action not having become developed. Sulphites are most likely to act in the way expected in cases of purulent infection—or septicæmia. In midwifery practice such cases are common enough. (Dr. J. W. Miller, p. 13.)

INTERMITTENT FEVER.—*Strychnia as a Substitute for Quinine.*—The reputed antiperiodic virtue of quinine is not superior to that of strychnia. About $\frac{1}{40}$ grain strychnia is equal about to three grains of disulphate of quinine. (Mr. W. J. Marsh, p. 343.)

SURGICAL FEVER.—*Chloral.*—The effects of chloral being not only to relieve pain and procure sleep, but also to reduce the temperature of the body, no plan of treatment more suitable in cases of surgical fever can be imagined than the administration of this drug. Under its influence sleep will be induced, pain and excitement relieved, temperature brought down, and undue waste suspended. (Dr. B. W. Richardson, p. 318.)

TEMPERATURE OF THE BODY.—*Effects of Alcohol on.*—After the administration of a dose of alcohol the temperature of the body invariably falls. Hence we need not fear giving it when otherwise necessary, simply on account of the presence of fever, for this latter circumstance is rather favourable than not, as alcohol is shown to be an apyretic. In addition to this lowering of temperature there is, of course, the well known action upon the pulse and upon the tone and diameter of the vessels, and the stimulant action upon the brain. Whenever alcohol is administered, the strength and also the frequency of the contractions of the heart rise ; if, therefore, such an effect is from any cause to be feared, alcohol is obviously an improper remedy to be employed. (Prof. C. Binz, p. 354.)

TYPHUS FEVER.—*Quinine.*—A case occurring in the person of a medical man, showing the occasional influence of quinine in arresting the progress of a case of typhus is given by Dr. Thompson, of Tyrone. The case was about as hopeless as it could be; respiration 48 in the minute, pulse 120, and "as prostrate and powerless as a dead body." In thirty hours after taking sixty grains of quinine, and about a bottle and a half of brandy, the report is, breathing 24; pulse 100 ; skin cool, and restoration of muscular power. Recovery ensued. (Dr. H. Thompson, p. 7.)

Typhus Fever and Pneumonia.—The diagnosis between these diseases at their commencement is often matter of considerable difficulty. Great reliance may be placed on the temperature. The maximum in pneumonia is always attained before the 6th day, usually on the 3rd or 4th; whereas in typhus the maximum is not usually attained until the 7th day or later. The maximum temperature in pneumonia is usually between 103° and 104° Fahr. (Dr. T. W. Grimshaw, p. 75.)

ZYMOTIC AND OTHER DISEASES.—*The Sulpho-Carbolates.*—There can be no doubt as to the action of carbolic acid when applied locally to a wound, but its internal use for the destruction of foreign and noxious germs in the blood, as in zymotic diseases, has not hitherto been practicable on account of the unsuitability of the pure acid for the purpose. The sulpho-carbolates, of which perhaps the best is the sodium salt, can be readily administered, and *in transitu* through the system the carbolic acid is set free and escapes with the breath, and sulphate of sodium passes off by the urine. From experiments made, it is found that half a grain of pure carbolic acid is equivalent to twenty grains of sulpho-carbolate of soda. From twenty to sixty grains of the latter should be given at a dose, dissolved in water. It is not unpleasant in taste and is readily borne by the stomach. It is particularly useful, of course, in zymotic diseases, as scarlatina, but is of great use in phthisis, in which disease it arrests the night sweats, and checks the fœtor of expectoration. (Dr. E. A. Sansom, p. 22.)

AFFECTIONS OF THE NERVOUS SYSTEM.

CHOREA.—*Strychnia.*—A case is related which occurred at the Middlesex Hospital, in which strychnia was used with considerable advantage. Six minims of liquor strychniæ was given in water every four hours, and two teaspoonfuls of brandy every four hours. Previous to this plan of treatment the case was going on very unsatisfactorily and exhaustion was rapidly coming on. (Dr. Murchison, p. 56.)

DEBILITY AND NERVOUS PROSTRATION.—*Phosphorus.*—Bearing in mind the chemical composition of brain matter (fat, albumen and phosphorus), and the fact that where an unusual amount of wear and tear of the nervous system is being sustained, it is common to find an excess of phosphatic matter excreted in the urine. We have good grounds, independently of experience, in giving phosphorus internally in cases of exhausted nervous power. In a parallel case we give iron in anæmia and chlorosis. A useful preparation of phosphorus is a pill, made by melting finely-divided phosphorus with fat, and then covering the pill with an impermeable coating; $\frac{1}{40}$th of a grain should be given as a dose. The hypophosphites of potash, soda, or lime may be substituted for the pure phosphorus. The hypophosphite of potash has a peculiar resolving and liquefacient action, and cannot be given in cases of tubercular deposit in the lungs, as it causes rapid softening of the tubercle. (Dr. J. C. Thorowgood, p. 341.)

DELIRIUM TREMENS.—There is considerable difference of opinion as to the employment of opium and the administration of stimulants in this disease. Dr. Maclean at Netley Hospital gives neither, and trusts to careful nursing, and feeding at short intervals with strong beef tea, to which Cayenne pepper has been freely added. Dr. Goodfellow, at Middlesex Hospital, injects morphia subcutaneously, and occasionally allows stimulants. Dr. Salter, at Charing-cross Hospital gives sedatives freely "aided by stimulants, and above all things *feeding*" The results which he has obtained, have been uniformly such as, in his opinion, leave nothing to be desired. Dr. Peacock, at St. Thomas's Hospital, has been lately employing bromide of ammonium with good results. (p. 57.)

Chloral.—In a case of delirium tremens which seemed progressing very unfavourably, and in which morphia had failed altogether, sleep was procured within five minutes by gr. xxx of hydrate of chloral. The sleep lasted about an hour, and when the patient awoke he was quite composed and rational. (Mr. H. T. Chapman, p. 60.)

EPILEPSY.—The following is Dr. Brown-Sequard's usual prescription for epilepsy: Iodide of potassium, one drachm; bromide of potassium, one ounce; bromide of ammonium, two drachms and a half; bicarbonate of potash, two scruples; infusion of calumba, six fluid ounces. Mix. A tea-spoonful of the mixture to be taken before each of the three meals, and three tea-spoonfuls at bed time, with a little water. In syphilitic cases he increases the amount of iodide of potassium. (p. 54.)

Assafœtida.—It may be worth while occasionally trying the effect of assafœtida in cases of epilepsy which are not benefitted by bromide of potassium. A case at Charing Cross Hospital is related which, after a duration of ten years, was cured by this drug. Half a drachm of the tincture with three grains of carbonate of ammonia was given three times a day. (Dr. Pollock, p. 54.)

Strychnia.—Just as certain cases of epilepsy are curable by bromide of potassium, so certain others are curable by strychnia. They are usually, females in whom the disease is liable to commence at or about the period of menstruation as *petit mal*, and are characterised by anæmia and defective nervous control. Large doses are unnecessary; smaller ones are preferable, frequently repeated. (Mr. W. Tyrrell, p. 55.)

HYPOCHONDRIASIS.—In cases of hypochondriasis, with tendency to true melancholia, phosphorus or its compounds are of no service, while from very small doses of strychnine the patient generally obtains most unmistakeable relief. (Dr. J. C. Thorowgood, p. 343.)

LOCOMOTOR ATAXY.—The pathology of locomotor ataxy consists in a grey degeneration and disintegration of the posterior columns of the spinal cord and of the posterior roots of the spinal nerves. It is quite a distinct affection from ordinary cerebral or spinal paralysis. Some affection of vision is often the first symptom, such as strabismus, then lancinating pains in the limbs, and after the lapse of time numbness in the feet and legs, in the hands and arms, or even in the face. Sooner or later the balance of the body cannot be maintained, and the patient totters in walking; then incontinence of urine and loss of sexual power appear, and the case gets gradually worse. The intellect is generally unimpaired, and the general health does not suffer much. The disease is more common in men than women. (Dr. J. L. Clarke, p. 66.)

SWIMMER'S CRAMP.—The sudden manner in which death occurs in cases of swimmer's cramp cannot be accounted for by cramp of the legs. This would not cause the man to sink suddenly and be no more seen. If a good swimmer he would be able to float. The only explanation can be that the muscles of respiration are suddenly seized with cramp, and the expansion of the lungs prevented or their air forced out. Death would then occur as it often takes place in tetanus. (Editor of Lancet, p. 381)

TETANUS.—*Calabar Bean.*—Out of seventeen cases of tetanus treated with Calabar bean there were only five deaths, a degree of success that has not been shown to follow the employment of any other remedy. (Editor of Dublin Quarterly Journal, p. 52.)

A case of tetanus arising from cold is related, which was treated by subcutaneous injection of Calabar bean. A third of a grain was injected four times the first day with the result of producing only nausea. The same doses next day were followed by nausea, faintness, and perspiration. The drug was then discontinued, an evident impression having been made on the muscles engaged. (Dr. B. Duffy, Florence, p. 49.)

Another case is related in which the powdered bean was given in three grain doses. combined with an equal quantity of powdered rhubarb. As much as 300 grains of the bean were given during the treatment of the case. None of the depressing effects which the bean by itself produces were observed. The case is chiefly interesting, however, from the fact that the bean was discontinued thrice during the progress of the case, and each time with the result of the spasms returning with increased force. (Dr. W. Fenwick, p. 39.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

ACUPRESSURE BY MEANS OF SMALL FORCEPS.—Small forceps bent at nearly a right angle at the point of junction of handle and beak, and of very small size, furnish an excellent method of arresting hemorrhage. The two halves should cross just above the angle so as to furnish a grasping power. These forceps are very suitable also when it is desirable to arrest circulation through an artery in its continuity, as in cases of aneurism; more suitable than the ordinary method of acupressure employed in these cases, as no disturbance whatever of the artery is required,and very little more than a punctured wound is necessary for their introduction. (Dr. J. A. Milne, Aleppo, Syria, p. 162.)

Tubular Presse-Artère as a Substitute for Acupressure.—An excellent form of presse-artère is the following: a fine silver tube containing a steel stem, and moving up or down on the latter by simply twisting a small milled button at the upper end of the tube. The tube contains a female screw fitting to the male screw of the steel stem. The steel stem ends in two smooth jaws, with which the vessel is seized and compressed by a few turns of the screw. (Mr. B. W. Richardson, p. 365.)

CARDIAC MURMURS.—Cardiac murmurs are conveyed to the chest walls in two manners—by convection and by conduction. They are conveyed by conduction through solid parts alone, by convection they are carried by currents of fluid in the direction of the flow. It results from this that we may have vibrations of which the blood is the vehicle transmitted either in the one direction or the other, according to which way it is passing through the orifice at the time the murmur is generated. We may have two murmurs, both of them generated at the same orifice, but which though originating at the same point are conveyed to the chest walls in such different directions, that not only do their points of maximum intensity differ, but there is not any one point in the chest where they are both of them audible. It is a mistake to suppose that the apex is the seat of maximum intensity of mitral systolic murmurs. (Dr. H. Salter, p. 69.)

NÆVUS.—*Injection of Carbolic Acid.*—Large deep-seated nævi may be successfully treated by injecting subcutaneously into them about two minims of pure carbolic acid, and repeating the operation as soon as the inflammation from the first injection has subsided. (Mr. Porter, p. 165.)

Piecemeal Excision of Nœvi.—In all cases where it is desirable to save the skin, as in the face, the following operation is the best. Divide the nævus completely in two, and arrest hemorrhage by pressure on the adjacent arterial trunks, or with a director on the skin surrounding. Then with a pair of clawed forceps, and scissors curved on the flat, remove piecemeal all the nævoid tissue, which is very easily distinguished from the healthy parts. The wound can then be closed and dressed. (Mr. F. Jordan, p. 165.)

Superficial Nœvi.—Apply a tartarised antimony plaster over the surface of the tumour, allowing it to remain until pustules resembling small-pox are produced. One part of tartarized antimony mixed with emplas. resinæ, and spread on thin leather or linen, suffices for most cases. (Mr. H. Bateman, p. 374.)

Varicose Femoral Aneurism.—If this disease were treated the same as is usually done when it occurs at the bend of the arm, viz., by tying the artery above and below the aneurism and laying open the sac, we run considerable risk by obstructing the circulation in the vein and producing gangrene. The proper plan is to tie the artery above and below the aneurism and close the wound at once, without any other interference. An interesting case of this rare affection is related, illustrative of this plan of treatment. "So soon as the upper ligature was tightened, all pulsation and sound ceased, and the appearance of tumour was almost effaced." (Prof. Spence, p. 144.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

Asthma.—*Belladonna.*—The action of belladonna in asthma is twofold. It acts upon the vessels of the spinal cord, and diminishes its sensibility. Secondly, it acts upon the large pulmonary vessels, causing them to contract, and so stimulating the pulmonary circulation. Belladonna seems to cause contraction of the muscular fibres of all the large arteries, it also produces more rapid action of the heart. (Dr. Seé, p. 88.)

Chronic Bronchitis and Emphysema.—*Tonics.*—In cases of chronic bronchitis and emphysema, in our persistent efforts with various antispasmodics and sedatives to ease the breath and cure the cough, we are liable to lose sight of those atrophic and degenerative tissue changes which underlie the symptoms we treat. Tonics, however they are feared by patients suffering from these diseases, are of great use, especially iron and nux vomica, or else strychnia in small doses. The presence of expectoration and of occasional fits of severe nocturnal asthma is no drawback to their administration; and not unfrequently the nux vomica will relieve these spasmodic attacks most effectually. Another medicine that is of great service, and that appears to promote nutrition, is arsenic. At times this drug will act quite like a specific in improving the breathing. (Dr. J. C. Thorowgood, p. 392.)

Inoculation of Tubercle.—If instead of tubercle a piece of caoutchouc, of blotting paper, of healthy tissue, of cancer, or of any other substance, be introduced into the peritoneum of an animal, unmistakeable miliary tubercle will be developed if the animal survive the operation long enough. Now this cannot be from inoculation from the substance introduced. The real effective agent is the dead and degenerated pus which is found in every instance as the result of the reactive inflammation after the introduction of the foreign bodies. The pus in the true foreign body, and its absorption into the economy is the cause of the subsequent pathological changes. (MM. Cohnheim and Fränkel, p. 87.)

PERSISTENT HICCOUGH.—Inject morphia subcutaneously. It will relieve the hiccough instantly. (Dr. J. Constable, p. 81.)

STAPHYLORAPHY.—*Operation for improving the Voice after.*—However successful an operation for closing a fissured palate may be, it is seldom that the voice is free from a very disagreeable nasal twang, owing to the soft palate being merely a tight curtain so placed as to allow air to pass freely into the posterior nares. With a view of remedying this defect, the author lately divided the soft palate on both sides by incisions passing downwards from the hamular processes to the free edge of the palate. The effect was certainly to improve the voice, but it is premature as yet to form a strong opinion as to the ultimate results of the operation. (Mr. F. Mason, p. 166.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

CEMENT FOR TEETH.—The following is a good cement for teeth: Finely powdered borax, 1 part; freshly calcined oxide of zinc, 9 parts; finely powdered silex, 2 parts; mix well together, and make a firm plastic mass. (p. 354.)

CHOLERA.—*Injection of Morphia.*—Dr. Bates, of Manchester, observes, that whatever the origin of cholera may be, it produces "tonic" spasm of the involuntary, and "clonic" spasm of the voluntary muscles. This suggested to him the subcutaneous injection of morphia in a case fully in the stage of collapse. On returning to see the effect in an hour afterwards he "found the abdomen warm which had previously been cold." He then repeated the injection, and in an hour afterwards found reaction becoming established. (p. 17.)

COLIC.—Choroform given internally, combined with opium, is an excellent and speedy remedy in colic, producing a sense of grateful warmth in the stomach, and radiating thence through the whole abdomen, soothing the painful parts. From ten to twenty minims is in most cases an effectual dose, combined with one or two drachms of compound tincture of camphor, if the pain be moderate in severity, or ten, twenty, or forty minims of "Battley," or sol. morphiæ mur., if more severe. The opium thus combined will not be found to cause sickness. (Dr. W. Marshall, p. 326.)

DYSPEPSIA.—*Subcutaneous Injection of Morphia.*—The subcutaneous injection of morphia is an excellent, indeed surprising, remedy in cases of dyspepsia, characterised by hyperæsthesia of the mucous membrane of the stomach, with tendency to vomit the food, general irritation of the system, capricious appetite, irregular state of bowels, and disturbed nights. There is usually a coated or too clean tongue, quick pulse, and general debility. A fourth or fifth of a grain of morphia will be found to clean the tongue, restore the appetite, and allay the irritability of stomach. In the forms of dyspepsia often occurring in hysterical women, the morphia syringe, carefully used, is by far the most potent remedy we have. (Dr. T. C. Allbutt, p. 90.)

HEMORRHOIDS.—*Smith's Clamp.*—Mr. Henry Smith recommends that his clamp for the removal of hemorrhoids (described in *Retrospect*, vol. lviii) be made with the ivory beyond the limits of the clamp, and at the upper extremity, for half an inch. When this is done the actual cautery may be used without the patient being able to tell when it is applied. (p. 176.)

HERNIA.—*Chloral.*—Chloral may possibly prove to be of use in cases of strangulated hernia, on account of the complete muscular relaxation produced. (Dr. B. W. Richardson, p. 319.)

Hernia Knife, to prevent the Blade being Overlapped by the Bowel during Herniotomy.—The knife used in herniotomy by having a broad back projecting beyond the end and sides, cannot by any mischance cut a piece of overlapping bowel. It can be used with such confidence that the introduction of the finger at the same time, as a guide, is not necessary. (Mr. B. W. Richardson, p. 364.)

Inguinal Hernia.—*Gerdy's operation.*—The simplest operation is that known as Gerdy's. The skin is well invaginated and then fixed by silver wire ligature, one end of which is passed through the outer and one through the inner pillar of the ring. The wires pierce the external skin at different spots. The wires are then drawn tense, and a coil of strapping of the thickness of a No. 12 bougie is attached to either end, and then rolled home. In Wood's operation it is not the skin but the subcutaneous fascia which is invaginated. (Mr. J. D. Hill, p. 173.)

Strangulated Femoral Hernia with Perforation of Bowel.—A case of strangulated hernia is related in which, during the operation, perforation of the gut occurred, owing to its soft and semi-sphacelated state. The aperture being small it was seized by a pair of forceps and tied gently with a ligature. The points of chief interest in the case, however, are two.

The ligature was not cut off short, but the end was left hanging out of the wound. Secondly, the sac was fastened by sutures to the edges of the wound. The object of these precautions was that any feculent or purulent discharge might find exit. Feculent discharge actually occurred a few days after the operation. The ligature came away on the fifteenth day. The bowels were not opened for four weeks, and this then occurred spontaneously. (Dr. P. H. Watson, p. 169).

ILEUS.—Dr. Whyte, of Elgin, reports a case of ileus which he relieved by inflating the bowels with air by means of a long tube and a hand-bellows. The previous use of large enemata had entirely failed. (Dr. G. Whyte, p. 395.)

INTERNAL HYDATID CYSTS.—The persistent internal use of tincture of Kamala poisons, and so cures abdominal hydatid cysts. (Dr. Hjalten, Iceland, Dublin Quarterly Journal, Aug. 1869, p. 52.)

MERCURY, PODOPHYLLINE, AND TARAXACUM.—*The supposed Cholagogue action of.*—The exhaustive and carefully conducted experiments of the Edinburgh Committee of the British Medical Association conclusively show that neither mercury, podophylline, nor taraxacum have any cholagogue action whatever. Mercury given to dogs has no effect on the biliary secretion so long as neither purgation nor impairment of health are produced, but where the health suffers, the amount of bile secreted diminishes considerably. Podophylline was found to diminish the secretion of bile, whether purgation was produced or not. Taraxacum had no effect whatever when given in doses of the extract varying from 60 to 240 grains. (Dr. J. H. Bennett, pp. 333, 336.)

SEA-SICKNESS.—Moisten the skin of the stomach with a solution of atropia, of the strength of one grain to the ounce of water. A flat disc forming the negative pole of an ordinary volta-electric apparatus, should then be applied over the pyloric end of the stomach. A sponge attached to the positive pole is to be passed, for three or four minutes, from the cardiac towards the pyloric end, varied by being occasionally passed downwards. Great and immediate relief follows, and generally a complete cure. (Drs. Le Coniat and Dwinelle, p. 381.)

TAPEWORM.—*Filicic Acid in Pills.*—Although filicic acid is not quite as active as the precipitate thrown down from extract of male fern, previously treated with ammonia by hydrochloric acid, yet when given in the form of pill combined with castor oil, it acts with the greatest certainty. This is to be ascribed, however, only to the purgative action of the oil favouring the deeper penetration of the remedy into the intestinal canal. (Dr. J. Rulle, p. 94.)

VOMITING AND ERUCTATIONS.—*Sulphurous Acid.*—A case of vomiting of nearly all food and constant eructations of frothy and sour clear fluid, was rapidly and permanently cured by the administration of half a drachm of sulphurous acid in one ounce of water three times a day. The case occurred at the Metropolitan Free Hospital. (Dr. C. R. Drysdale, p. 94.)

Ipecacuanha.—Ipecacuanha exerts a power over all diseased mucous membranes in checking profuse secretions. It is especially useful in spasmodic coughs attended with profuse mucous expectoration and vomiting. It also has a direct action upon the stomach in cases of obstinate sympathetic retching or vomiting, without primary disease of the stomach. In these cases it must be given in very small doses frequently repeated. (Dr. C. D. Phillips, p. 350.)

Oxalate of Cerium.—The oxalate of cerium in its maximum dose, gr. iij., is an excellent sedative in cases of dyspeptic vomiting. (Mr. S. A. Lucas, p. 354.)

AFFECTIONS OF THE URINARY ORGANS.

ALBUMEN IN THE URINE FROM SURGICAL DISEASES AND OPERATIONS.—When the blood is contaminated in consequence of accident or disease, albuminous water may be the result, without any organic disease of the kidney. The albumen in such cases, together with the colouring matter of the blood, may escape in very considerable quantities. These cases must not be confounded with those in which, from some local disease of the kidneys, ureters, or bladder, blood-corpuscles are found in the urine. (Mr. H. Lee, p. 108.)

CHRONIC BRIGHT'S DISEASE.—*Change of Climate.*—It is found that the mortality from renal disease is infinitely greater in England than in warmer and less changeable climates. In St. Mary's Hospital, London, the proportion of deaths from renal disease to the total number of deaths is as 1 to 31, in the whole of London as 1 to 49, in Paris as 1 to 266, in Bombay as 1 to 2800, in Genoa as 1 to 4303. These facts warrant the expectation, in cases of chronic Bright's diseases occurring in temperate climates, that arrest of the diseases or retardation of their progress, as well as increased and prolonged tolerance of them, may often be effected by a timely change of climate. (Dr. W. H. Dickinson, p. 105.)

DIABETES.—*Opium.*—I know of no medicinal agent that is capable of exerting a controlling influence over the complaint like that exerted by opium. The effect is so striking that there can be no question of its reality. (Dr. F. W. Pavy, p. 106.)

LITHOTRITY.—*New Lever Lithotrite.*—The author describes a mode of applying lever power to the ordinary screw lithotrite of Weiss. It is effected by a pair of handles projecting at right angles from the lithotrite, and resembling in appearance those of a pair of tooth forceps. By the closing of these handles the necessary movements of the lithotrite are effected. The advantage is rapidity of motion when small pieces of stone are being crushed. The screw can be employed when thought preferable, as the lever does not in the least interfere with its use. (Dr. P. H. Watson, p. 179.)

NEPHRITIC IRRITATION.—*Extractives in the Urine an Early Sign of.*—The extractives of the blood may escape in the urine and constitute a constant and important drain on the system, often the forerunner of albuminuria. Their presence may be detected by tincture of galls, which immediately precipitates them. (Dr. O. Rees, p. 107.)

RETENTION OF URINE.—*New Instrument for.*—The author describes a new form of catheter and guide for the relief of retention of urine. The principle of the thing is the passage of a fine whalebone guide, upon which the catheter is then passed. A number of these guides must be at hand, and if the first one catches in a false passage it is to be left there, and a second passed, if that catches it is also to be left, and a third passed. By this means the false passage becomes blocked up at last. The guides before using should have a very slight spiral twist imparted to them by dipping in hot water, twisting round a small staff, and suddenly cooling. (Dr. J. W. S. Gourley, p. 196.)

STRICTURE OF THE URETHRA.—In cases of chronic stricture in which it is necessary, from time to time, to pass an instrument, do not be too ambitious to pass a large one. Much error exists on this subject. One is apt to think that the larger the instrument the greater the chance of cure. In these cases, however, the reverse is true, and moderately-sized instruments are most suitable. (Mr. J. Adams, p. 193.)

Non-rupture of the Urethral Mucous Membrane by Holt's dilator.—Cases of traumatic stricture of the urethra can rarely be treated except by either urethrotomy or forcible rupture by Holt's dilator. Holt's dilator, however, possesses the advantage over the other operation of leaving the urethral mucous membrane entire, and only rupturing the submucous indurated structures. This has only been quite recently discovered, for the opportunity of examining a urethra which has been only recently operated upon very rarely occurs. If a stricture be experimentally split up in the post-mortem room it will be found that the mucous membrane itself is split. This does not occur during life. (Mr. C. Heath, p. 189.)

PHYMOSIS.—*Sudden Dilatation.*—A very simple and effectual mode of treating phymosis is by sudden dilatation, whereby the constricting mucous membrane is torn up to the full extent required. It is necessary first of all to calculate the exact amount of dilatation required, and then with an ordinary dressing forceps, or an instrument specially made for the purpose, to suddenly open out the narrowed parts. The only dressing needed is a strip of lint moistened with water, which should be wrapped round the part so as to retain the foreskin retracted, and cover the wound. When there is induration and matting of the parts this plan of treatment is not so successful. The operation will not be successful unless the foreskin is well retracted and so retained for twenty-four or forty-eight hours, otherwise the tear is not transverse. (Dr. F. R. Cruise, p. 363.)

VARICOCELE.—The chief cause of the want of success in the treatment of varicocele is the dependent condition of the testicle, the anatomical arrangement of the vessels remaining unchanged. There is no better plan to obtain immediate palliation of the symptoms, and even a gradual and perfect cure than suspension of the testes directly upwards. The suspender consists of a piece of web about 3½ inches wide at one end, 4½ inches long, 4 inches wide at the other, and cut gradually tapering to the narrower end. A piece of thick lead wire is stitched in the rim of the smaller end, and the sides are furnished with neat hooks, a lace, and a good tongue of chamois leather, two tapes being sewn along the entire length of the web, which are afterwards attached to the suspending belt. The application is easily made by the patient in the morning before rising, and when the parts are relaxed, laying the affected organ, while in the dependent position, in the "suspender," and lacing up the hooks with a moderate degree of tightness, then raising it up and attaching the tapes to the suspending belt previous to rising from bed. It is not necessary that the suspender should be worn at night. (Mr. T. Morgan, p. 369.)

FRACTURES, OPERATIONS, AND DISEASES OF THE BONES AND JOINTS.

ABSCESS DRAINAGE BY SPIRAL WIRE TUBES.—Tubes made of very fine hard brass wire, by coiling it regularly and evenly over a fine steel rod, are very useful as drainage tubes. They are especially so when a sinus is tortuous and long, and in cases where it is desirable to drain the uterus of pus, blood, or retained secretions. No inflexible tube could be left in the cervical canal without causing pain and injury. The coils of wire should not be quite close, they should be pulled out very slightly, so as to make the tube more flexible, and to allow of the secretions of the canal itself to exude into its interior. For an ordinary abscess, tubes of this kind may be introduced on a probe or director, and often without any such assistance, by a spiral coaxing sort of motion. (Mr. R. Ellis, p. 377.)

Antiseptic Cere-Cloth for Covering Wounds.—The author recommends the use of calico, steeped in an antiseptic mixture of carbolic acid and paraffin, as a covering for wounds. Of the three formulæ he gives for the preparation, the one of medium strength is the following:—Pure carbolic acid, f. ʒij; olive oil, f. ℥iiss; yellow wax, f. ʒiiss; paraffin, f. ℥v. Mix. Cere-cloth made with this moulds itself readily to any peculiarity of form, and at the same time does not adhere so closely to the part to which it is applied that it cannot readily be removed. The carbolic acid is slowly dissipated by the heat of the body, and so forms an antiseptic atmosphere round the wound. (Mr. E. Lund, p. 330.)

Condy's Fluid as a Dressing to Wounds.—Condy's fluid is quite as good as carbolic acid as a dressing to wounds, and is much more pleasant, the smell of the latter being almost insufferable to many patients. (Dr. V. Stone, p. 130.)

Club-Foot.—*Direct Extension.*—Fix two broad straps of adhesive plaster, one on either side from the knee to the malleoli, and hanging free for twelve inches below, these straps being prevented from slipping when drawn upon by two or three circular straps, encompassing, but not compressing the leg. The foot must then be placed flat on the common iron foot splint, and the heel drawn down by knotting the two straps of plaster underneath the splint. For this purpose they are to be passed through the slits in the heel. The splint referred to is a simple flat foot piece of thin iron, having three slits near the edge at each side, for the passage of plaster or bandage; and a hollowed or concave upright piece to the ankle and lower part of the leg. The heel being fastened down in the way described, the anterior part of the foot is to be applied to the foot piece, and retained in position by straps of plaster. Of course, a very prolonged treatment in this way is often required. (Mr. J. Tufnell, p. 368.)

Hare-Lip.—*New Method of using Needles in the Operation for.*—To all the methods of inserting hare-lip pins there is this great objection, that they are liable to leave scars. This may be prevented by the following plan. Introduce two ordinary seampstress's needles, armed with a few inches of silver wire doubled through the flaps, in the form of a St. Andrew's cross, so that the points of each come out at the roots of the alæ of the nose, on the opposite side to that on which they were respectively introduced. The needles cross in the middle of the wound. The heads of the needles having now being buried in the tissue of the lip, and the points cut off and retracted within the flesh, by twisting the wires together the edges of the wound may be perfectly and accurately brought together. (Mr. L. Tait, p. 136.)

Suture Pin Conductor for Hare-lip.—The author describes a suture pin conductor, useful for facilitating the introduction of suture pins in such cases as hare-lip. It resembles in appearance the curved hollow needle used for introducing metallic sutures. This instrument is first passed through the parts where it is desired to introduce the pin, and the latter is inserted by its point into a perforated hole at the end of the conductor. The conductor is then withdrawn, taking with it the pin into its proper place. (Dr. G. Buck, New York, p. 137.)

Interrupted Suture.—*Method of Applying by means of fine Sewing Needles.*—Take a number of fine sewing needles and insert and fix each in the following manner. Pass it through the cutis alone of the margins of the edges of the wound, and bringing them together secure them in that position by passing a single noose of ligature silk from one extremity of the needle to the other. The needles should be inserted at distances of about three-eighths of an inch, until the whole wound is closed. The extremities of the needles should be nipped off with a pair of pliers, merely allowing the eighth of an inch to project at each side. It is a good plan however only to pass the needle so far through the tissues, that it shall be unnecessary to remove any of the point, as the tapering form of this portion facilitates its removal, which should be done the next day. The wound should be washed with weak carbolic acid lotion before closing it. (Dr. J. Lamprey, p. 134.)

Pathology of Joint Disease.—Clinically it is important to bear in mind the distinct origin of diseases of joints in either the bone or the synovial membrane. There is no such thing as primary disease of the articular cartilages. Changes in the cartilage are always secondary to one of the two primary affections; when of the synovial membrane the change is slow and partial, when of the bone rapid and complete. (Mr. T. Bryant, p. 115.)

Strumous Diseases of Joints.—If we look for the points of difference between the so-called strumous disease and the chronic inflammatory affection we shall fail to find them. They are not clinically to be distinguished. The term strumous disease ought to be expunged from our vocabulary, for its use certainly misleads by encouraging the idea that the disease to which it is applied has more a constitutional than a local action, and is consequently incurable. (Mr. T. Bryant, p. 114.)

AFFECTIONS OF THE SKIN, ETC.

Ekzema of the Scalp and Eyelids.—There are two parts of the body to which the benzoated oxide of zinc is unsuitable as a local application for ekzema, these are the eyelids and the scalp. In the first situation it is liable to get upon the conjunctiva and cause irritation, and in the second it mats the hair and prevents that perfect cleanliness which is so necessary. For it you should substitute the nitric oxide of mercury ointment, diluted in the proportion of one part to three of benzoated lard. (Mr. E. Wilson, p. 218.)

Herpes Zoster.—The greatest advantage results from immediately painting the vesicated patches over with flexible collodion, and repeating the application as often as required. (Editor of Dublin Quarterly Journal, p. 229.)

In-growing Toe-nail.—When the case is advanced nothing answers satisfactorily except removing the half of the nail on the side of the disease, or a narrow slip of it. In the early stage it will suffice to cut out the in-growing corner of the nail and cauterise the granulations deeply with nitrate of silver. A small pad of lint should be so fixed by a strip of adhesive plaster as to press the skin *from* the nail, and the patient should be directed to wear wide-toed boots. (Mr. Croft, Mr. Heath, pp. 231, 232.)

Saturate a piece of cotton wool with a solution of liquor potassæ (two drachms to the ounce) and press it gently down between the upper surface of the nail and the soft tissues, which latter are usually in the form of a fungous mass of granulations. The solution softens and pulpifies both the nail and the granulations, and they become in time entirely dissolved and removed at the diseased part. The lotion must be continued until all ulceration has disappeared. (Mr. Norton, p. 231.)

Powdered nitrate of lead is an excellent application to the sanious fungous ulcers resulting from onychia. A single application every twenty-four hours is sufficient, a light bandage being put on over the diseased surface. After the first dressing the pain ceases, the swelling decreases, and the fœtid odour is destroyed. (Dr. de Moerloose, p. 233.)

Ulcers of the Legs.—*Medicinal Treatment.*—Sufficient prominence is not given to the medicinal treatment which experience proves is useful in cases of ulcers of the leg. Opium, iodide of potassium, and arsenic, each has its appropriate class of cases. Opium is most suitable in cases of chronic callous ulcer, in the small irritable ulcer occurring with varicose veins, and in any form of ulcer in which sloughing action has supervened. Iodide of potassium is an "infallible" remedy in cases of ulcer dependent upon a syphilitic taint, when given in ten grain doses, thrice daily, in combination with an alkali. The majority of these ulcers occur in women, and are traceable, in most cases, to infection through the husband. Arsenic, in doses of 10 to 15 minims of the liquor arsenicalis, is to be employed in those cases in which chronic ekzema is a concomitant if not an antecedent of the ulcer. (Mr. C. Heath, p. 234.)

VENEREAL AFFECTIONS.

Buboes.—If a bubo is opened by an incision parallel with Poupart's ligament, as is usually done, every movement of the thigh or body tends to disturb the coaptation of the edges of the wound. As is well known, the process of filling up and healing of the part is extremely tedious. This is not the case when the incision is vertical, and in the centre of the suppurating gland. It should be just sufficiently large to allow of the free exit of the pus. A solution of carbolic acid, one part to ten, should be injected into the bubo next day, and the part covered with lint, wet in a weak solution of acid. The carbolic acid will be found to prevent the secretion of pus. If a second bubo forms near the first, a probe must be passed into it through the aperture in the first bubo, and a small aperture made in the integument, so as to allow of the escape of the pus. The carbolic acid lotion may now be forced through both buboes, by a syringe placed at the opening in the first. (Dr. J. Lamprey, p. 240.)

Gonorrhœa.—*Continuous Injections.*—The reason of the failure of most injections in gonorrhœa is, that they are not applied in a manner and quantity to reach the deeper portions of the urethral canal, which is always diseased. The general idea that the inflammation is confined to the terminal portion of the canal, is quite erroneous. A continuous injection may be made with a two-ounce bottle, having two india-rubber tubes connected with it, and springing from two glass tubes perforating the cork. One glass tube should reach just through the cork, the other nearly to the bottom of the bottle. The india-rubber tubes should terminate, one in a small mouth piece, the other in a nozzle suitable for introduction into the urethra. The injection to be used (bisulphite of lime, ʒj. to ℥j. water) can be forced in a continuous stream, by blowing air into the bottle by the mouth-piece. This of course is done by the patient. (Mr. J. Morgan, p. 239.)

Syphilis.—Iodide of potassium with blue pill, is the most suitable plan of treatment for secondary syphilis; the double compound of iodide of mercury and potassium, for syphilitic inflammation of deeper tissues, and for the earlier tertiary phenomena of syphilis; the bichloride of mercury for the intermediary squamous syphilides. (Dr. J. K. Spender, p. 239.)

Subcutaneous Injection of Mercury.—In administering mercury for the cure of syphilis, the object should be to avert any affection of the mouth, or any other physiological action of the drug, the occurrence of which will necessitate our discontinuing the remedy, before it has exerted its curative influence on the disease. The occurrence of tenderness of the gums and salivation, is no criterion of the amount of mercury absorbed into the system, or of the remedial power of the drug. During the administration of mercury, its action upon the gums should be guarded against by the patient's frequently sucking a little alum. The plan of injecting the mercury subcutaneously, in the form of bichloride, is that which is freest from the risk of complications. A solution should be made, containing 1 grain in each 100 minims of fluid, and of this, 10 minims may injected every second or third day. Equal parts of water and glycerine form the best menstruum. (Dr. T. J. Walker, p. 236.)

AFFECTIONS OF THE EYE.

Iritis.—The patient being rightly placed and the sound eye closed, let the shadow of the surgeon's hand fall upon the affected eye, and then leave it suddenly two or three times in succession. If the pupil dilate and contract slowly and uncertainly, iritis is to be suspected. Atropine should then be applied, and if iritis is present the pupil will resist dilatation, and will become irregular in shape. It is possible to mistake acute glaucoma for iritis, but this error may always be avoided by remembering that acute glaucoma is the only inflammatory disease of the eye in which the pupil is found dilated. (Mr. R. B. Carter, p. 204.)

In every case of iritis, whatever else may be done or left undone, the one thing that should never be omitted at the commencement of the treatment is the application of atropine.

The atropine acts not only by producing dilatation of the pupil, but by actually reducing the inflammation. It diminishes hyperæmia by producing some contraction of the blood-vessels, and secures rest to the parts within the eye by producing temporary paralysis of all the parts concerned in the intraocular movements of the eye. (Mr. R. B. Carter, p. 205.)

No good will ensue until the pupil is widely dilated. The plan I generally pursue is to direct the patient to apply a strong solution of atropine (four grains to the ounce) every five minutes for the first half-hour, and repeat this for half an hour at a time, three times daily. Mercury need only be given if there is a very considerable exudation of lymph at the edge of the pupil, or if there is a syphilitic taint, and in these cases, I generally prefer inunction. (Mr. J. S. Wells, p. 385.)

Ophthalmia Neonatorum.—If the inflammation runs high and the discharge is thick, creamy, and copious, the following injection will be found serviceable: Sulphate of zinc, two grains; alum, four grains; distilled water, one ounce. Some of this is to be injected with a small glass syringe between the lids every fifteen or thirty minutes during the day, and every two or three hours during the night. Every day or two a drop of a strong solution of nitrate of silver (from four to ten grains to the ounce) may be applied. Should the cornea become ulcerated atropine drops must be applied. If the ulcer threatens to perforate it should be pricked with a needle, and the aqueous humour allowed to flow out. This may be repeated several times. (Mr. J. S. Wells, p. 198.)

Paralysis of the Third Nerve.—*Calabar Bean.*—In cases of paralysis of the third nerve, accompanied, as it always is, with paralysis of the levator palpebræ and recti muscles, the use of extract of Calabar bean locally applied offers us a prospect of cure. It has not yet been sufficiently tried, but in one case, carefully recorded, it apparently acted as a direct stimulant to the third nerve. Atropine on the other hand acts as a stimulant to the sympathethic nerve, and hence arises their difference of action upon the pupil. The sixth nerve which supplies the external rectus is in intimate connection with the sympathetic, and in paralysis of this muscle atropine is more suitable than the Calabar bean. Atropine and Calabar bean are not only antagonistic in their action on the nerves, but in their action on the vessels, for whilst atropine contracts the arteries, Calabar bean contracts the veins. This may be readily demonstrated on a rabbit's ear, and may be seen in the action of a solution of the extract on a slightly congested conjunctiva. (Mr. T. W. Jones, p. 207.)

Phlyctenular and Granular Ophthalmia, Pannus, &c.—*Tannic Acid.*—The application of a little finely powdered tannin to the eye or lids is of use in several affections of the eye and eye-lids. Phlyctenular ophthalmia, characterised by the appearance of one large pustule, or two or three smaller ones at the edge of the cornea, and herpes corneæ of strumous children, generally yield rapidly to daily dusting of the cornea with tannic acid. In the case of strumous children general treatment is also required, such as quinine and cod-liver oil, with calomel. In granular ophthalmia the tannin should be dusted on the palpebral conjunctiva. (Mr. R. Hamilton, p. 199.)

MIDWIFERY, ETC.

Carbolic Acid in Obstetric Practice.—It is of great service to wash out the cavity of the uterus with weak carbolic acid lotion, or permanganate of potash, in cases where the lochial discharge is offensive, or where there is reason to suspect retention *in utero* of a portion of membrane after abortion, and in cases where there are decomposing coagula in the utero-vagina canal. The whole of the benefit must not be attributed to the disinfectant, as of course the simple washing out is of itself an important matter. (Dr. J. G. Wilson, p. 293.)

Dysmenorrhœa.—*Obstruction of the Cervical Canal.*—In cases of partial retention of the menstrual fluid, arising from obstruction of the cervical canal of the uterus, or from the bent state of the part accompanying displacements of the womb, the greatest advantage may be derived from introducing a drainage tube, made of fine hard brass or copper wire. These tubes are easily made, by winding the wire round an ordinary knitting needle. They are extremely flexible, and adapt themselves readily to any curve. The tube should be passed mounted on a uterine sound, the cervix meanwhile being fixed by a tenaculum. A morsel of vulcanised india-rubber tube should be slipped over the free end of the tube, to prevent its abrading the posterior wall of the vagina. (Mr. R. Ellis, p. 378.)

Flexions of the Uterus.—*India-Rubber Pessary.*—The author uses a pessary for flexion of the uterus, which is a small, almost inelastic india-rubber ball, attached at an obtuse angle by a short neck, to an ordinary elastic inflatable pessary. After introduction into the vagina, the inflation of the pessary forces the small india-rubber ball between the uterus and bladder, restoring the uterus to its normal position in cases of anteflexion. The pessary must be passed with a small ball, looking towards the uterus. In cases of retroflexion, it is only necessary to pass the pessary along the posterior wall of the vagina, reversing in short, the introduction of the pessary to what obtains in cases of anteflexion. (Mr. J. Clay, p. 292.)

INTRA-UTERINE DISEASE.—*The Endoscope.*—The endoscope may prove a most useful adjunct to our means of diagnosis, in cases of intra-uterine disease. The author relates a case of small fungous growth, within the uterine cavity, giving rise to sanguineous discharge, which he was able, by the aid of this instrument, to see distinctly. It was easily removed by the application of caustic. (Dr. D. C. Pantaleoni, Paris, p. 271.)

OPIUM.—*Its Action upon the Uterus.*—The action of opium upon the uterus, is to stimulate contraction of the fibres of the body of the uterus, whilst it relaxes those of the os. Opium, although it may relieve false pains, never can and never did, arrest a physiological labour. This action of opium may be made of service, when the os uteri refuses to dilate, notwithstanding the regular occurrence of pains. In placenta-prævia, opium not only acts as a hæmostatic, but it facilitates dilatation, and thus shortens the period of the greatest danger, and also promotes the expulsive power of the uterus. It may be administered with advantage in ordinary cases of labour, instead of ergot; and when the placenta is detained, owing to hour-glass contraction of the womb, it will be found to relieve the irregular contraction, and cause expulsion of the afterbirth. (Dr. P. C. Barker, p. 243.)

OVARIAN DROPSY.—*Advantages of Tapping in.*—After one or two tappings, especially if the cyst has attained a considerable size, there is usually a marked improvement in the patient's health, and a considerable reduction in the original size of the tumour, so that if ovariotomy becomes necessary, a moderate incision only in the abdominal wall is required. Moreover, the tendency of the peritoneum to inflame, seems to diminish with the duration of the disease, probably on account of the continued friction of this membrane against the surface of the cyst, diminishing its sensitiveness. Considering these facts, and in view of the admitted great fatality of ovariotomy, it is always advisable before recommending the major operation, to tap the cyst two or three times, both on account of deferring the necessary risk to life, and of decreasing the amount of that risk, when it is necessary to encounter it. (Mr. G. Southam, p. 359.)

OVARIOTOMY.—*The Pedicle.*—The pedicle of an ovarian tumour on reaching the cyst spreads out, and its vessels become much subdivided, so that they only enter the cyst or tumour as capillaries. It is a singular fact that the pedicle can be peeled off from its attachment to the tumour, and in consequence of the minute size of the vessels ruptured there is hardly any perceptible hemorrhage, and the pedicle can be returned into the abdomen without any treatment whatever, neither by ligatures, nor cautery. (Dr. J. F. Miner, p. 298.)

Ovariotomy during the Existence of Peritonitis.—It is evident from the success of a case of ovariotomy performed during the existence of acute peritonitis that we are sometimes too much afraid of acting vigorously when we have to do with the peritoneum. It is probably only in the cachectic that we need fear evil results, and that only in those unhealthy patients in whom, when the subjects of peritonitis, creamy lymph is poured out. Mr. Spencer Wells lately successfully operated in a case of ovarian disease in which, when the peritoneal cavity was opened, a patch of peritonitis was found, the existence of which had not been suspected up to that moment. (Dr. A. Wiltshire, p. 294.)

PAINFUL MENSTRUATION.—*Alcohol.*—It is quite true that alcohol will relieve the pain of difficult menstruation. It is also true that if the brandy can be administered strictly as a medicine regulated to the minimum dose necessary, no harm will be done, though no permanent cure can be expected. But during the whole of the menstrual period of life, the organism is so exquisitely alive to its own emotions, that the effect of a false step in the direction of narcotic indulgence may be tremendous. It is a good rule never to recommend, or even allow, a patient subject to ovarian neuralgia to take alcohol at all, except in the ordinary quantities *with meals.* (Dr. F. E. Anstie, p. 20.)

PROSTRATION ARISING DURING THE PUERPERAL STATE.—Turpentine given internally, or by injection, is not only, as is well known, extremely useful in cases of uterine hemorrhage, but in those cases of great prostration, characterised by rapid pulse, tympanitic abdomen, and other symptoms not connected with peritoneal or other fever, yet threatening the advent of a typhoid condition. In an interesting typical case, the injection of turpentine and mucilage by the bowel seemed the first thing to light up the dying embers of life. (Mr. E. Garraway, p. 269.)

PUERPERAL FEVER.—Puerperal fever, or erysipelas, for the two diseases are without doubt the same, may obtain entrance to the puerperal chamber in two modes, viz., epidemic influence and contagion. If the disease is epidemic it will make its way into the private house as surely as into a lying-in hospital.

When carried by contagion, it is by erysipelas conveyed by the medical attendant. No one should attend parturient women who is in attendance on any other than a lying-in hospital, or in any dissecting room. (Dr. Beatty, p. 265.)

There can be no doubt puerperal fever is producible by inocculation from the hands of the accoucheur. Students whilst attending lying-in hospitals, or midwifery in private practice, ought to be precluded from dissecting, and the man who devotes himself to obstetrics should abjure the study of pathological anatomy. (Dr. M'Clintock, p. 268.)

Local Depletion.—Local depletion is our sheet anchor in this disease, the secret of success being to reapply leeches every six or eight hours, before reaction is established, and as long as the pulse indicates the propriety of further abstraction of blood. If enough has been taken the pain should be relieved and pressure borne. There is no doubt of the efficacy of mercury, if its specific effects can be produced, but in the worst cases the system seems insusceptible of its action. When the disease is expected it is a good plan to commence the administration of mercury immediately the labour is over; so as very gently to affect the system. We should not forget that should the disease progress collapse may be expected; our treatment, therefore, should be two-handed, and whilst we should keep under the disease we must keep up the strength by nutritious broths, jellies, milk, and farinaceous foods. (Dr. E. Kennedy, p. 3.)

OBSTETRIC FORCEPS.—*Curve of Blades.*—Many modern forceps are curved so sharply that the blades are only in contact with the head at two points. The greatest distance between the blades when worked should be a trifle under three inches, they will then be in close apposition with the head throughout the entire length, and therefore very little liable to slip. (Dr. T. M. Madden, Medical Press and Circular, Sept. 1, 1869, p. 181.)

SORE NIPPLES.—*Nitrate of Lead.*—Nitrate of lead dissolved in glycerine, in the proportion of ten grains to the ounce, is an excellent application to excoriated nipples. It should be applied by means of a small camel's-hair brush. It will not cure every case, but it is seldom that disappointment results. Care must be taken to wash the nipple previously to applying the infant. (Dr. J. S. Wilson, p. 276.)

SEA-TANGLE TENTS.—*To introduce into the Cervical Canal.*—Cut off the end of a gum elastic catheter, leaving the stilet projecting.

The tents must be bored so as to allow of being mounted on the projecting portion of the stilet, but care must be taken that the wire does not project. The string which is attached to the lower end of the tent, being carried down by the side of the catheter, is held by the same hand. The arrangement can then be introduced without a speculum, as an ordinary uterine sound. (Dr. J. B. Hicks, p. 301.)

Sponge Tents.—*To Prepare Rapidly.*—Having wet the sponge to be used with water, and then pressed it as dry as the strength of the hand will allow, press it into a quill, or any suitable tube or mould. If it is now immersed in spirit sufficiently strong (90 to 100 per cent.), it will immediately set into the given shape, and will be hard and inflexible, and can be cut or trimmed to a point if desired. To restore it to its former size and shape it is only necessary to moisten it with a few drops of water. (Dr. J. B. Hough, p. 394.)

Spina-Bifida.—*Ligature.*—A case of spina-bifida is related in which the tumour was successfully removed by means of ligatures. Two days after birth a silk ligature was applied round the neck of the tumour and only tightened slightly. The following day another ligature was applied a little tighter without disturbing the first, and the following day a third. The three ligatures were all kept on until the tumour sloughed off, which it did in three weeks, leaving only a very small wound, which readily healed. Three years have now elapsed and the child is strong and healthy. (Dr. E. Sidebottom, p. 131.)

Sub-Mucous Fibroid Tumour of the Womb.—Dr. Palfrey has operated upon 119 cases of sub-mucous fibroid tumour of the womb with only one death, and that in a case of Bright's disease of the kidney. He divides freely the cervix uteri by means of a hysterotome, cutting through both the outer and inner os, and then passes up a long narrow-bladed knife, serrated at the edge like a saw. By a firm and pretty decided sawing movement the knife must be made to divide the tumour, up to, or nearly up to its uterine attachment. The blade must be then turned to the right, and a lateral cut made in this direction, then a similar cut to the left. The cuts must be well plugged with strips of oiled lint, and the vagina with plugs of balls of cotton-wool, tied at small distances to a piece of whipcord, for convenience of withdrawal afterwards. Thirty hours afterwards the vaginal plug should be removed, and the part gently washed out with a tepid douche. The actual removal of the tumour by the surgeon is unnecessary, it will gradually disappear, or come away as discharge. (Dr. J. Palfrey, p. 283.)

TEDIOUS LABOURS.—*When to Interfere.*—The pains may cease under two conditions. In the first the uterus is relaxed, it is resting quietly, and pains will return in time. In the second the uterus is contracted, the action is continuous, the pains have become more rapid, but weaker, until they have ceased, and spasmodic contraction alone remains. In this case chloroform should be used to diminish the violence of expulsive pains; when, however, the state of continuous action has set in, the sooner we interfere the better. (Dr. G. H. Kidd, Dr. J. B. Hicks, p. 249.)

VOMITING OF PREGNANCY.—*Oxalate of Cerium.*—The following constitutes a most successful plan of treatment. ℞. Cerii oxal., ext. lupuli āā gr. 24; div. in pil. xij., cap. j. ter in die. At the same time exhibit bromide of potass in ten grain doses, with the tincture of yellow cinchona bark and spirits of ammonia. (Dr. J. W. Curran, p. 248.)

MISCELLANEA.

ANÆSTHESIA.—*New Mode of Exhibiting Nitrous Oxide.*—Any admixture of air with nitrous oxide greatly impairs its efficacy as an anæsthetic. The insensibility is less perfect, and is less rapidly produced than when the gas is perfectly pure. The apparatus should be so arranged that the residual air of the lungs can be first diluted with nitrogen, and then pure nitrous oxide may be turned on for inspiration. During the inhalation of nitrogen the pulse will be found to fall steadily, but upon supplying the nitrous oxide it soon regains its force and frequency. (Mr. A. Coleman, p. 353.)

APOMORPHIA.—This base is procurable from codeia, which it resembles in chemical constitution. It is one of the most certain emetics known, $\frac{1}{10}$ of a grain subcutaneously, or $\frac{1}{4}$ grain by the mouth, being the dose required. The disadvantage of it is that it is a depressant in some cases, the patient seeming as if his muscular power were gone; the vascular system, however, does not appear to be depressed to an equal extent. (Dr. S. J. Gee, p. 325.)

BIRD'S INHALING PIPE.—Mr. Bird has recently invented a pipe for the inhalation of various medicinal substances. In appearance it resembles an ordinary short pipe, with a cap or stopper at the top of the bowl. On lifting the cap a felt sponge is found on its under surface, for the reception of the fluid to be inhaled. Chloroform combined with camphor, carbolic acid, and spirits of wine may be thus inhaled; or the sponge may be removed and any suitable preparation of mercury or iodine may be smoked over either ignited tobacco, stramonium, or hemlock, with the greatest facility, and the fumigation continued far more persistently than by any other of the usual methods. (Mr. J. Bird, p. 338.)

CHARCOAL RESPIRATORS.—Charcoal is the best material of which to make a respirator. It possesses two advantages over the ordinary metallic wire, viz., it purifies air drawn through it of foreign gases and mechanical impurities ever so finely divided; and it actually warms the air so drawn through about two degrees more than does wire gauze. A charcoal respirator will not only warm the cold air breathed out of doors, but will also impart additional heat to the air of a room comfortably warm, although considerably under the temperature of the body, and it is questionable whether in certain cases the indoor use of the respirator may not be attended with advantage. (Dr. W. Marcet, p. 347.)

CHLORAL.—Chloral is not introduced to the profession as a rival of the anæsthetics used in operative surgery, but as a substitute for opium. When administered in an efficient dose (a drachm is not an immoderate dose for an adult), it produces on man and on the inferior animals a kind of stupor or sleep, which may be made to extend over five, or even seven hours with comparative safety. It is attended with great muscular prostration, and with decrease of animal temperature. The hydrate of chloral is a white solid substance, having a pungent smell, with which is combined the odour of ripe melon. The hydrate dissolves readily in water, and thirty grains of it dissolved in forty of water make up one fluid drachm of a saturated solution. (Editor of Lancet, p. 309.)

Chloral, so far as at present appears, possesses all the advantages of opium, and none of its disadvantages. It rarely causes nausea, never vomiting, nor does it leave behind it headache, nor loss of appetite. The sleep produced by it is gentle, and unattended with any symptom of distress. Cats purr as they pass into rest in obvious comfort and repose. During a portion of the period of narcotism, there may be complete anæsthesia with absence of reflex actions, and a condition in which every kind of operation fails to call forth consciousness. In the transition from drowsiness to stupor there is no stage of muscular excitement. The action of the substance on the nervous system is primarily on the sympathetic ganglia, afterwards on the cerebrum, and finally on the heart. (Dr. B. W. Richardson, p. 310.)

Chloral is a rather pungent liquid produced by the action of chlorine upon alcohol, and it forms a crystalline hydrate with water. When this hydrate is administered medicinally it is decomposed in the blood, and chloroform is set free, producing its usual effects on the nervous system; but different in this respect, that the action is more prolonged in consequence of the slow evolution of chloroform, and the troublesome sickness of chloroform does not follow. In a case in which the hydrate of chloral was given in doses of forty-five grains, sound sleep was procured every night, and complete relief to distressing neuralgia. The patient complained of headache next morning. The German journals state that there is complete freedom from any distressing after-effects. (Mr. T. S. Wells, p. 320.)

Thirty grains of chloral give about as much relief to pain as one grain of opium, but its effects are more immediate. It is not so certainly followed by sleep, or by sleep of such long duration; but on the succeeding day no kind of ill effect is observed. (Mr. T. S. Wells, p. 323.)

Hydrate of chloral varies considerably in its action with different constitutions. Whilst in one case forty grains will procure sleep, in another seventy may produce no effect. When sleep is produced it is always rapidly so, and it is generally calm and peaceful, but in most cases slight congestion of the head and face, and slight perspiration are noticeable. (Mr. J. H. Barnes, p. 390.)

CHLOROCODIDE.—This is a base procurable from codeia, intermediate in composition between it and apomorphia It is a most intense bitter, and may prove useful as a stomachic and tonic. A quarter of a grain taken by the mouth causes an uncommon sense of tonicity in the abdomen. Quina, which is so often given as a stomachic, is a much less intense bitter than chlorocodide, and tends to produce fullness, and aching of the head, which chlorocodide does not. (Dr. S. J. Gee, p. 326.)

DIAGNOSIS OF DEATH BY THE PUPIL.—If a fully dilated pupil is found in connection with the cessation of the respiration and the circulation, we may safely conclude that life is extinct, and that the process of artificial respiration would be futile. In a case of bronchitis in a child, death had apparently suddenly taken place, but the pupil remained contracted, and artificial respiration brought the little patient round, with the aid of friction to the feet and legs. (Mr. C. M. Jessop, p. 85.)

DRY-EARTH SYSTEM FOR CAMPS.—There can be no doubt that next to efficient sewerage the dry-earth system is the best mode of disposing of human excreta not detrimental to health. Sewerage is out of the question in camps. The only objection to the earth system is its cost. Dried and finely pulverised clay is more efficient than earth; indeed at Madras, where the the whole thing has been thoroughly tried, seven pounds of the clay was found to equal seventeen of earth. If it becomes necessary to deposit liquid ordure in pits, carbolic acid should be added, as it quite prevents decomposition. (Surgeon-Major Wyatt, p. 382.)

GUINEA WORM.—*Mode of Rapidly Extracting.*—Dip a silver probe in a mixture of one part of carbolic acid to three of oil, and pass it up on each side of the worm as far as it will go up the sinus. This will destroy the resisting power of the worm for a certain length, and if drawn upon it will be found to come out *freely.* As soon as resistance is felt the acid must be applied again, and a fresh portion extracted, until the whole is removed. In a case treated in this way the whole worm was removed in about two hours, and it measured thirty inches in length. (Mr. J. Tufnell, Dublin Quarterly Journal, Aug. 1869, p. 45.)

INFLUENCE OF CITIES ON THE ATMOSPHERE.—Dr. Angus Smith, the inspector under the Alkali Act, has in his fifth official report, furnished some interesting information as to the effect of large cities, and especially of manufactories, in contaminating the atmosphere. The following extracts express some of his principal conclusions.

"The rain from the sea (Western Islands) contains chiefly common salt, which crystallises clearly.

"The sulphates increase inland before large towns are reached.

"The sulphates rise very high in large towns, because of the amount of sulphur in the coal used, as well as decomposition.

"When the air has so much acid that two or three grains are found in a gallon of the rain-water, or forty parts in a million, there is no hope for vegetation in a climate such as we have in the northern parts of the country.

"Free acids are not found with certainty where combustion or manufactures are not the cause.

"Experiments in the direction indicated above may enable us to study and express in distinct language the character of a climate, and certainly of the influences of cities on the atmosphere."

"In Manchester, in 1867, the maximum acidity of the rain was 7.39 grains per gallon, and the minimum 0.31 per gallon. (British Medical Journal, Oct. 30, 1869, p. 471.)

Acidity of Rain.—In Dr. Angus Smith's fifth annual report as Inspector under the Alkali Act, he supplies the following statement as to the relative proportion of acid in rain water from different localities.

"The total acid in rain collected from various sources bears the following relationship.

Row, Dumbartonshire	100.00	=	1
Whiston, ten miles from Liverpool	470.67	=	4¾
Birkenhead	528.29	=	5¼
Liverpool	938.21	=	9⅖
Waterloo, on the shore	961.98	=	9½
Newcastle-on-Tyne	1054.73	=	10½
Manchester	1175.54	=	11¾
Near an alkali work	1539.27	=	15⅖

"We can scarcely be surprised, after glancing at this table, at the rapid decay of stone in certain localities, compared with others, and the long endurance of buildings of antiquity which are far from large towns and in a pure and open air—such as the Parthenon and the Pyramids of Egypt."

Alkali works liberate free acid which is brought down in rain-solution, to the great injury of vegetable life. It was to prevent this that the Alkali Act was passed. (British Medical Journal, Oct. 30, 1869, p. 471.)

PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

ART. I.—ZYMOTIC DISEASES AS MORE ESPECIALLY ILLUSTRATED BY PUERPERAL FEVER.

By Dr. EVORY KENNEDY, ex-Master of the Dublin Lying-in Hospital, and ex-President of the College of Physicians in Ireland.

[Puerperal fever is par-excellence a zymotic disease. There is a well established connection between the prevalence of puerperal fever and that of general epidemics of other zymotic diseases. So frequently has the metria shown itself in the Lying-in Hospital of Dublin, and in the city generally, when continued fever, typhus, or erysipelas were prevalent in the medical and surgical hospitals, that they are generally considered as standing in the relation of cause and effect.]

The difficulties that beset medical men in investigating the epidemic and contagious nature of puerperal fever were simply expressed by the late Dr. Collins; when after detailing its prevalence in the early years of his mastership of the Lying-in Hospital, and the success of the steps taken by him to lessen it, he adds—"The facts here detailed are strongly calculated not only to lead us to suspect, but even prove that this fever derived its origin from some local cause, and not from anything noxious in the atmosphere. To this I should assent," he continues, "had we not proof equally well authenticated, of its prevalence and fatality in the houses of the affluent, as already stated." If the views we have arrived at, and which we now venture to propound, with regard to the true nature of the poisoning in these cases be correct, then the contagious and sporadic nature of puerperal fever will be perfectly reconcilable. Collins's paragraph, above quoted, contains the gist of the puerperal fever difficulty in a nutshell. Its local cause approaches more nearly to a *constant* quantity in the wards of a crowded Lying-in Hospital; whereas it is only an *occasional* quantity in the houses of the affluent; and the only influence exercised in its production by the atmosphere is, that in certain states of the atmosphere, the constant and occasional quantities become *more operative* or *active* in generating or propagating this dreadful malady—a malady thus zymotic in its type and origin, produced by a poison emanating from parturient women; more active in proportion to the concentration of their excretions or exhalations, and consequently in proportion to their number cohabiting in a given number of feet of atmospheric space; but not requiring more than one parturient female to generate it; when the poison she herself has generated may, as in the case of blood-poisoning, be re-absorbed into her own system, and self-contamination then as certainly strike her down as if a crowded ill-ventilated lying-in ward was the generating medium. The most striking parallel that we are acquainted with of the generation and development of diseases under similar conditions are, the gaol fever (a disease now fortunately little met with), erysipelas in surgical hospitals, cholera in our camps and overcrowded human gatherings, and tuberculosis as observed among the poor work-people in Paris and other crowded cities, a fact that has given rise to the idea that phthisis should also be classed with zymotic diseases. In Paris, for instance, where this disease prevails so largely among the "ouvriers," it is calculated that 40,000 live huddled together in "chambres garnies," or furnished apartments, containing from eight to ten beds in each. The confining apes in close ill-ventilated menageries generates tuberculosis in these animals, apparently from similar causes; and glanders, a purely zymotic disease, produced by crowding horses together in ill-ventilated stables, furnishes us with a further example. Of the parallel with erysipelas, pyemia, hospital gangrene, and what we might term generally "hospital malaria," we shall have occasion to treat more at large when alluding to traumatic metria.

In distinguishing between puerperal fever or metria and its congeners, it will be unnecessary to my present practical audience to dwell upon afterpains, hysteralgia, or what I used to denominate to my class peritondynia or gastralgia; but peritonitis and metritis may require a passing notice. Such cases, in the pure form as we see them occur unconnected with deliveries, are occasionally to be met with, and may be known as partaking more of the character of local inflammation without zymotic indications. These are the cases that will bear depletion best, and the use of the lancet is too much neglected in them. Twelve to eighteen ounces of blood extracted from the arm, followed by eighteen or two dozen of leeches, will often relieve and subdue all inflammatory symptom, and the pulse that was hard, contracted, and compressed, will, as in ordinary peritonitis, rise to a more rounded resistance under this treatment.

The distinction I should draw between this form of disease and true metria, is that in the latter there are the characteristics of blood poisoning, the shrunken features, the depression, the unmistakable expression of countenance that the practical obstetrician cannot be deceived in.

In true puerperal fever of the present day the use of the lancet is rarely admissible; local depletion must be our sheet anchor. But in having recourse to it the secret of success is to reduce the pain by repetition of leeching before reaction has had time to establish itself.

The physician should see his patient every six or eight hours after the first attack; and if he find that his first leeching has not enabled the patient to bear pressure and relieved her from pain, he should at once apply more leeches before reaction is established, and so on as long as the pulse will indicate the propriety of further abstraction of blood.

Allowing, according to circumstances, a longer interval between each leeching as he finds the necessity become less urgent or the state of the circulation less indicate its propriety. A neglect of attention to this rule has often, to my own knowledge, caused patients to be snatched away by this fatal disease, who, in the hands of less hesitating or more energetic practitioners, might have been fairly reckoned upon as surviving. I know no more harassing trial to the consultant, in these cases, than to have been called into and assisted in subduing, the acute symptoms by prompt and energetic treatment, and then, when matters have improved, to be relieved from attendance under the impression that the danger was over, only to be recalled to see the patient, perhaps, forty-eight hours later, beyond the reach of treatment, from the inflammation having been again allowed to creep on to an impending fatal issue. This has occurred so frequently in my own case, that it left me in doubt whether, for my peace of mind, I should not refuse altogether to see such cases in consultation. Let my younger, and indeed my older, hearers be advised by me, whenever they think it necessary to divide the responsibility in such cases, to make the consultant sustain his share of it, until *he* pronounces the case out of danger. This is only fair by the physician in attendance, as well as by consultant, as a contrary practice is sure to recoil upon the ordinary attendant, in case of a casualty. Another practical hint I would wish to impress upon my hearers is, as to the use of mercury in these cases. There is no doubt of its efficacy if you can produce its specific effects; but, in the worst cases, there is not time for this, and indeed the system seems to be insusceptible.

When peritonitis or metria were to be anticipated, as when the disease was prevalent, after manual interference, in labour, or for the removal of the placenta, my habit was, to commence at once after the labour was completed, with small and frequently-repeated doses of mercury, say a grain or half a grain of grey powder every third or fourth hour, and even applying in more suspicious cases mercurial ointment to the arm-pits and groins. By these means, without disturbing the patient's system to any serious extent, in the course of forty-eight or fifty-six hours a slight mercurialization may be perceptible, often before the time at which the disease could grapple the patient; and then, should metria or inflammatory symptoms show themselves, by pressing mercurials a little more freely the system may speedily be brought under its specific influence, and the disease be thus easily checked if it had not already been prevented. I have only on one or two occasions seen puerperal fever prove fatal after mercurialization showed itself, and in them the action was incomplete. But, on the other hand, how often have I seen mercury in every dose fail in producing the slightest approach to its specific effects? I fear the answer to this question would exhibit a fearful array of baffled remedial efforts. I may mention, however, as apparently contradictory to this view a case that occurred under my care, in the Lying-in Hospital, of a woman who came in under the influence of mercury, which she stated she had taken only to the extent of three pills, as what she termed "sweetners;" and yet this woman was attacked with metria on the third day, and the attack proved fatal. Whether this was due to the fact that speedy ptyalism is not always a proof of constitutional mercurialization or to the failure of the prophylactic, my hearers may be the best judges.

In dealing with metria the two-handed treatment, that of relieving local inflammation, whilst we support the constitutional powers—the strength and the circulation, by administering food easily and rapidly assimilated into the circulation, are the two chief indications, the latter just as essential as the former; and, in the true *metria*, or well-marked zymotic puerperal fever, by much the most important of the two. It must never be forgotten that the zymotic metria, *especially*, as we see it in hospital, is a *poison fever;* and no matter how severely it sets in with local distress and anorexia, that it is essentially a disease of debility, passing more or less rapidly into a state of collapse; consequently, that however depletory our treatment may be to check or restrain local distress and lesions, we must look steadily forward and provide for the coming issue—collapse and sinking from exhaustion. Our treatment must, therefore, be directed to that, and nutritious broths, jellies, milk, and farinaceous food should be as freely given as possible, compatible with their being retained on the stomach. The same observations apply to stimulants, but they require more judgment in their administration, and, as a general rule, must be given as we observe their effects to be satisfactory.

On the whole, however, I have little doubt that they are given too *sparingly* and delayed too *long* in their administration—delayed, in fact, until the patient is absolutely sinking, when the stomach will not retain them and they produce no reaction. There is, however, a form of this disease which I ventured to describe many years ago, in which the symptoms of marked collapse and exhaustion set in early, accompanied with tympanitis, showing an exaggerated train of symptoms from the very commencement—countenance sunken; pulse small, rapid, and compressible; but this state not always accompanied by a corresponding amount of abdominal pain. I described this form as allied to the class of cases described by Laennec under the term "Factitie Debile." Now, in this case we cannot commence our stimulants too early, and can scarcely administer them too freely. It is incredible the quantity both of stimulants and nutriments that this class of cases will take. It is the form in which turpentine treatment best agrees. It seems to be one in which the intensity of the poisoning and the extent of the inflammatory lesions bear no relative proportion, or rather are often to be found in an inverse ratio, *post mortem* examination showing in them only slight effusion; sometimes merely a gelatinous effusion behind the peritoneum in the cellular tissue; perhaps only a large flabby uterus, with intense tympanitic distension, and often little or no effusion in the abdomen, pleura, or other cavities, nor any lesion of veins or uterus.

I recollect a case of this kind attended about three years since in consultation with the late Dr. Hardy and Dr. Mitchell. We left the house on three occasions, scarcely deeming it necessary to make a fresh appointment, the patient's dissolution appeared so imminent; and yet she recovered perfectly and speedily, and with little or no resulting inconvenience, and is now a strong healthy lady. In this case the lady consumed two bottles of wine, a quart of beef-tea, and a pint of brandy in twenty-four hours.

In describing the varieties assumed by metria, we would denominate one what we should term traumatic metria, or that occurring as the result of injuries, operations, and lesions of any kind during the delivery. In this way, when zymotic metria prevails in hospital or in private, we know that operations or lesions that could at other times be calculated upon, as productive of little or no inconvenience, almost doom our patients either to fatal or alarming illness. The use of the forceps, of the crotchet, rupture of the perineum, abrasions, slight lacerations or injuries in the vagina, nay, even the use of the lancet in venesection, are thus followed by metria, often of the most indomitable character. In fact, the air of the maternity becomes charged with a poison, in many respects similar to what we observe in our surgical and military hospitals. In this way erysipelas, pyemia, arthritis, diffuse inflammation, phagedena, or hospital gangrene, run their course of havoc, exactly as in the operation wards of surgical institutions. The year 1838 was replete in the Dublin Lying-in Hospital with these traumatic cases. I drew the attention of the British Medical Association to some of their varieties at their meeting in Dublin in 1867; and showed drawings made at the time by Kirwan, Conoly, and myself. I shall here give a case of traumatic puerperal gangrene, combined with cerebro-spinal symptoms and purpuric discolorations that occurred in that epidemic.

Margaret M'Gouran aged 32, who was doing well for two days after her delivery with the forceps, in consequence of tedious labour, was attacked on the morning of the 2nd of March, 1838, by cerebral symptoms, with rapid pulse and slight abdominal tenderness. Her excitement was so great that she became unmanageable, and was obliged to be restrained in bed. She complained incessantly of pains in her legs. The whole surface of the body, but more especially the face and lower extremities, became livid. Large blue coloured bullæ, or vesicles, appeared on different parts on the lower extremities. The excitement subsided in a few hours into a state of depression, and she sank at noon on the 3rd, about twenty-eight hours from the commencement of the attack. Only an abdominal examination could be obtained of this case, when a small quantity of bloody serum was found in the peritoneal cavity, and some sloughing in the vagina. The subcutaneous cellular tissue of the body was the seat of congestive infiltration, this was particularly evident when a section of the adipose wall of the abdomen was made and the left lower extremity was livid.

The black serum brings to recollection my old friend Dr. Alison's case of the black fluid in the blistered vesicles.

Those who have had an opportunity of seeing this class of case will bring to mind that in arthritic metria the joints are generally secondarily affected, and that at intervals of several days, nay often of weeks after the peritonitis or metritis has run its course. It was not so in several of those, which I might term thundering cases of arthritis that occurred in 1838. On the contrary, the joints were the first organs attacked, and the knee, the elbow, the ankle, the wrist, but above all, and the most violent of all, the sacro-iliac synchondrosis, assumed in turn the lead, as the structure attacked. In some there occurred erysipelatous inflammation of the buttock. The torture attending these arthritic forms is extreme in all cases, but in that where the synchondrosis was engaged it was absolutely intolerable. The fullest opiates failed to afford relief, and violent as was the outburst, and extensive as was the structure engaged, although some of them proved rapidly fatal, others yielded to treatment: but only to that of the most prompt and decided kind; namely, the application of superficial caustics and escharotics, but chiefly to the free use of the actual cautery. Those cases in which lesions occurred in labour, as lacerations of the perineum, were attacked with hospital gangrene, when the free use of caustics and mineral acids, with chloride of soda lotion and antiseptic poultices, were useful. Erysipelatous inflammation of the buttock proceeded in more than one case to gangrenous sloughing, and in another of this kind, although the ankle and knee were both extensively engaged, the woman recovered.

Bold incisions were made in some of these cases. under the advice of the late able and distinguished surgeon Abraham Colles; but the result was not satisfactory, and uncontrollable hemorrhage even followed their use.

The last variation of type, observed as a genus, of the general family of metria, to which I shall direct your attention, is what I designated in a paper read at the meeting of the British Medical Association, "Puerperal Purpuric Fever." I described it as a disease of peculiar malignity, that appeared in an endemic attacking the patients in the Lying-in Hospital, in December, 1837, then under my care, and which carried off thirty-five patients between that month and the month of April, 1838.

In a certain proportion of those attacked, symptoms exhibited themselves unlike what had hitherto been observed in metria. Those symptoms corresponded in their characteristics with what Dr. Marston clearly described in his two classes of the disease so unfortunately denominated the "Black Death," and which attracted so much attention two years ago in this country,—Firstly, those expressive, as he justly terms it, of profound blood poisoning; second, those of cerebro-spinal irritation.—*Dublin Quarterly Journal, May* 1869, *p.* 269.

2.—A CASE ILLUSTRATING THE EFFECT OF QUININE IN TYPHUS FEVER.

By Dr. H. Thompson, Surgeon to the County Tyrone Infirmary.

On the 23rd of April ultimo, I was sent for to see the physician of a workhouse, twenty miles from here, and found him in typhus fever, which had commenced with a day of well-marked rigors four days before.

The disease was characterized by an unusual amount of prostration, coolness of surface and feebleness of pulse, not generally found at so early a stage. His pulse was 120, and there was an eruption of maculæ over trunk and extremities, without any petechial admixture. He had a peculiarly heavy look in his eye, and complained of headache. His intelligence was perfect, and he distinctly attributed the attack to contagion. He had taken some aperient medicine when he found himself ill, which had cleared out his bowels. He was habitually temperate and abstemious, aged 30, not a very strong constitution, and had as yet taken no stimulants, fearing to increase his headache.

In consultation with his local medical friend, the case was recognized as likely to be a severe one, and it was decided to have his head shaved; cold cloths kept applied; a hot jar to his feet; a citrate of ammonia mixture, every fourth hour; beef-tea and milk *ad libitum*, and two glasses of sherry, or one of brandy, largely diluted, to be used as drink from time to time.

April 25th. Heart's impulse weaker; want of sleep and some tendency to delirium; no complaint made of the head, so it was not inquired about. Ordered:

Half an ounce of brandy in water every second hour.

Chloroform gtts. x.; liq. opii sed. (Battly), gtts. xv.; mist. camphoræ, ℥ ss. M. F. haust. h. s.

26th.—Slept five hours at intervals; one sleep lasted two hours; pulse 110, very feeble; skin much warmer; wanders a little, but knows every one; bowels confined last two days. Ordered: Enema saponis.
Continue nourishment as before.
Brandy, four glasses daily.

28th. Scarcely holds his ground; the maculæ have come out abundantly, and preserve a good colour. He is intelligent, though wandering when left to himself; sleeps sufficiently without medicinal aid; bowels open, and conscious of his evacuations; respiration 40; pulse 130, and very weak. His father, a medical practitioner of great experience, and his local medical friend, concurred with me in forming a very unfavourable opinion; we all looked upon the case as one that would not terminate, in the most favourable event, before the close of the third week, and we felt, considering the small effect of the large quantity of stimulants and nutriment he was consuming, that it was hardly possible that he could hold out for that time.

On my way home, anxiously considering the case with these impressions, I asked myself, "Can nothing be done to cut it short? for if it goes on, he cannot hold out," and at the same moment the idea of quinine came into my head; so I wrote back by the guard of the next train suggesting the addition of three grains to each dose of citrate of ammonia mixture; this was commenced the same night at about twelve o'clock, and he got six grains. After the second dose the gentleman in attendance thought he perceived such a change, that he was afraid to continue the quinine; the patient's eye assumed a wild restless expression. He expressed a conviction that he was about to die, called his family about him, and bade them adieu, in perfectly intelligent and affecting terms. His sister, however, plied him well with brandy, which she had previously been permitted to use without limit, and when the *scene* was over he became quieter. An enema of port and beef-tea was also given, which with his urine, he passed unconsciously, but he slept at intervals, and perspired slightly; this was early in the morning of the eleventh day from the rigor.

April 30th. At 9.30 a.m., I found his pulse improved, fuller and stronger, and 120 ; respiration 48 ; skin warm and moist, it might even be called hot ; his intelligence was not much impaired when roused, but prostration so extreme that he lay like a log scarce able to move a finger ; his tongue was black and dry, and his bed a mass of filth, both urine and fæces having been passed under him ; in fact, they all thought that he had but a few hours to live, and that there was little use in tormenting him any further. I took quite a different view, however, and having got a clean fresh bed placed besides that on which he lay, I threw off the bed-clothes and washed his whole body over with tepid vinegar and water, cleansing every part thoroughly, and drying it as it was wet.

He was then lifted into the clean bed, and though his body was limp and flaccid as if he were dead, as soon as he was in the clean sheets he looked up, recognised me with a smile, and muttered "I liked that kicking about." I had previously given him five grains of quinine in a half a glass of brandy, pure ; I ordered it to be repeated every third hour, with beef-tea and milk *ad libitum;* before I left the house at twelve o'clock he had fallen asleep, and his skin had become hot and moist.

May 1st., 4.45 p.m. When I left him at twelve yesterday, he was prostrate and powerless as a dead body, and he was breathing 48 in the minute, with pulse 120 ; perspiring slightly. Since then he had got five grains of quinine every third hour in sherry, and as much brandy and beef-tea as he could be induced to swallow. Altogether, in about thirty hours, he had taken sixty grains of quinine, and about a bottle and a half of brandy. On this evening I found him lying quietly in a light dose ; breathing 24 ; pulse 100 ; skin cool, and extremities rather inclined to be cold. Instead of a prostrate condition of the muscular system, there was rather rigidity and a tendency to be troublesome, so that for some hours it had been difficult to get him to open his mouth to let in the food and medicine. When I offered it to him he seemed to wish to comply, and would slightly separate his teeth. When awake he would also kick off the bed-clothes and try to get out of bed, showing a complete restoration of muscular power, which rendered it rather difficult to restrain or control him. While I was present he woke up, stared wildly about, tossed off the bed-clothes, and then shouted out in a loud voice and with grimaces, which would have been ludicrous under other circumstances, "Oh my belly's sore," lengthening out the last word into a prolonged shout, and repeating it several times, at the same time pressing his hands on his sides and forcing as if he wanted to empty his bowels. An enema of turpentine, oil, and assafetida was suggested, but rejected with indignation; then a draught of castor oil, and tincture of senna was offered, which he seized with avidity and swallowed at a gulph, though previously he had obstinately clenched his teeth and made a difficulty of letting anything pass them. It was, however, evident that it did not now so much matter; a portion of the poison had been eliminated sufficient to admit of the return of his nervous and muscular power, and instead of prostration there was now rather wild vigilant excitement, obstinacy of will, and considerable muscular energy, amounting to rigidity in the maxillary muscles, and altogether partaking somewhat of the character of cerebro-spinal irritation. I, therefore, brushed some blistering liquid over the nape of his neck, and ordered a draught containing half a grain of muriate of morphia, directing the quinine to be continued in two gr. doses. I left him at midnight, having had him removed into a clean bed, in which he was sleeping tranquilly.

May 2nd. Received the following report from his sister:— He lies quietly, sleeping and taking his nourishment with appetite; eye and voice rather excited; mouth a little dry; bowels were moved by the castor oil; was inclined to ask questions, but on being told you did not wish him to talk, turned on his side and went to sleep. His father came to see him, and was gratified and surprised to see him so strong; does not care much for beef-tea, though he takes plenty; likes his milk, and asks for it.

May 3rd, 4.45 p.m. Sleeping tranquilly when I arrived; soon after awoke quite himself, shook me warmly by the hand, and began to make a speech, which I put a sudden stop to.

I need not go on detailing a steady progress to recovery, which went on uninterruptedly from this forward.

I give this case for what it may be considered worth, and should not have thought of publishing it had I not been asked to do so; whether the marked change which took place after the exhibition of the quinine were a case of propter or post—every one must determine for himself. The prominent points seem to lead to the former conclusion, for the following reasons:—

In a case of maculated typhus characterised by profound depression of vital power, and considered hopeless by three men of large experience, unless some change could be effected by treatment, a measure rather unusual was adopted, with the expressed intention of producing the change so much desired, and was followed by effects so marked as to call for the discontinuance of the remedy in the mind of one of the attendants.

The improvement effected was not, however, interfered with by the temporary omission of the medicine; but, on its being resumed a few hours after in larger doses, went on until the resolution of the fever, which may be said to have been complete on the second day of the exhibition of the quinine, and on the 13th of the disease, the change having commenced on the 11th, which is not one of those periods commonly regarded as critical in the natural course of the disease.—*Dublin Quarterly Journal, Aug.* 1869, *p.* 103.

3.—REMARKS ON THE TREATMENT OF ZYMOTIC DISEASES WITH SULPHUROUS ACID.

By Dr. W. Jackson Cummins, Physician to the Cork South Infirmary and County Hospital, &c.

[Dr. Cummins states that he has almost entirely given up the use of the bisulphites as prophylactics since he has tried the much more efficient and practicable mode of introducing sulphur into the system by means of sulphurous acid, made by burning sulphur in the sick room. After relating several cases he observes :]

The most remarkable effect of the antizymotic treatment was the comparative immunity enjoyed by other members of those households which adopted it, whole families having escaped infection in some instances, and in all, except one, the subsequent cases been much less severe than the first.

It may be supposed that the almost continuous smell of sulphurous acid kept up in a respectable house for weeks together would be found intolerable, but such is not the case; if set free in too large a quantity at a time, it of course produces cough, sneezing, &c., &c., but burnt frequently in small quantities, it is not found disagreeable, and from the sense of purity it imparts to the air it is rather pleasing to some people, myself among the number. If I remain long in the sick room when sulphur is burning, I find that it leaves a sweetish taste in my mouth, and invariably gives me a feeling of hunger and extreme relish for food. The nurse of one of my little patients, who being an asthmatic, was apprehensive as to the effect of the fumes upon herself, informed me subsequently that her chest was much better than usual during the time the smell of sulphur was kept up in the house.

I cannot conclude this communication without quoting extensively from a paper on the pathology of cholera by Dr. E. A.

Sansom in the February No. of the Medical Press and Circular, as much of the information there compiled to illustrate the pathology of that disease is applicable to all zymotic diseases, and to the subject before us.

It may seem incredible to a superficial observer that a small portion of sulphurous acid diffused through a sick room could influence the progress of diseases, the outward manifestations of which are often so appalling; but when we consider the extreme minuteness of the molecule, possessed of vital properties, which introduced into the blood multiplies thereon, it becomes more intelligible, thus to quote from Dr. Sansom:—"The investigation of the phenomena of vaccination has shown how almost inconceivably minute are the particles capable of inducing disease. Not only are these said to be, under the highest powers, molecules scarcely visible, but the researches of Chauveau has shown that if vaccine lymph be diluted with 150 times its bulk of matter, and a milligramme of the solution be conveyed on a lancet-point to an animal organism, it is capable of inducing the phenomena of vaccine disease. According to Beale the organised bodies capable of producing cattle plague must be less than 1-50,000th part of an inch in diameter. Analogy, therefore, lends colour to the hypothesis that zymotic matter (and by inclusion cholera matter) is composed of particles at the utmost verge of vision;" and again Dr. Farr, quoted by the same author, says—"The habits of the vibrion, the velocity of its development, and its power of disorganizing other organic forms, are seen under the microscope. If vibrions constituted the cholera ferment, diffusion through water, and to some extent through sewers or air . . . would be perfectly intelligible. Two vibrions would become by fissiparity 4, 8, 16, and at the 100th generation, at this uninterrupted rate, 126,765,000,000,000,000,000,000; and as generations succeed each other by the hour, this accounts for the swarms in every drop of cholera fluid." (Report, cit. p. lxvii.)

Dr. Sansom says further. "In a solution in which spontaneous fermentation has not yet begun be examined under the microscope, besides the organic *debris* nothing can be discovered. Soon, however, appear granules, and afterwards vibrios. It follows that there existed before these vibrios evident to vision, germs of vibrios which were not evident to vision;" and again, "Dujardin discovered fifty species of infusoria during the putrefaction of a single substance. Moreover, the forms presented belong not only to the vegetable, but also to the animal world. Mitscherlich long ago propounded the doctrine that animalculæ were amongst the essential agents of fermentation. It is certain that the development of microzoa accompanies that of microphyta;" but not only are innumerable and low forms of organised beings produced and reproduced from a single parent of inconceivable minuteness, but the pabulum from which such beings are reproduced has an influence on the form and structure of the new beings, for Hallier states "that certain fungi appear in distinct, definite, and unvarying forms, accordingly as they are cultivated in a soil rich in nitrogen or in a soil poor in nitrogen."

In my communication on cholera, I dwelt upon the influence of the pabulum on which the zymotic poison reproduces itself, although unaware at the time that such had actually been demonstrated; and this knowledge makes intelligible the varied type and intensity presented by the same disease in different persons and different epidemics.

It is unnecessary for me to comment upon the bearing of the quotations which I have made upon the antizymotic and antiseptic treatment of the class of diseases, for it must be apparent to all how an agent such as sulphurous acid, which is admittedly destructive to low forms of life, can extinguish the germs of disease, and thus become prophylactic, or even curative of the early stages of illness and of secondary inoculation at later periods.—*Dublin Quarterly Journal, Aug.* 1869, *p.* 221.

4.—ON THE THERAPEUTICAL VALUE OF THE SULPHITES.

By Dr. J. W. Miller, Dundee.

The researches of Professor Polli on the antiseptic powers of the sulphites, have induced many to put these powers to the test in their treatment of disease.

Professor Polli found that the anticatalytic power of sulphurous acid was also possessed by its compounds the sulphites and hyposulphites. He found that these salts could be taken by animals in large doses with impunity. He took some blood from a dog which had been taking the sulphite in its food for some days previously, and exposed it in an open vessel to the air; and at the same time he exposed, in another vessel, some blood taken from a dog which had not had the sulphite; the latter became quite putrid in a few days, while the former remained fresh above three weeks, thus proving the presence of the sulphite in the blood, and its power of resisting putrefaction. In a further stage of his researches, he took two dogs of about the same size, and both apparently in good health; to the one he gave two grammes of sulphite of soda daily, to the other none; otherwise they were treated alike. After five days he injected into the veins of both one gramme of pus from a fœtid abscess. Both dogs suffered severely for about twenty-four hours, but next day were a little better, and took some food. The injection was then repeated to both dogs, the sulphite being continued to the first. Both again suffered for a short time with equal severity, but the dog which had been treated with the sulphite gradually recovered, while the other continued to get worse, and died ten days after the second injection. He made many further experiments on dogs with similar results, varying the nature of the poison injected, employing sometimes pus, sometimes putrid blood, and also the discharge from the nares of a horse affected with glanders.

The results of these experiments are very striking, as showing that the sulphites do possess, in a remarkable degree, the power of opposing the process, of whatever nature that may be, which is set up in the blood by the reception into it of the poison contained in putrescent animal fluids: and it has been argued from these results, that in the sulphites we possess a remedy which should prove of the highest value in the treatment of the whole class of zymotic diseases. These high expectations have not, however, been fully realised in actual practice, and I have thought that it would be not without profit to communicate the issue of a pretty full trial which, when physician to the hospital here, I gave to the sulphites in the treatment of typhus fever.

During the year from June 1865 to June 1866, there were admitted into the hospital 884 cases of typhus. Of these, 161 were treated by the sulphites; sulphite of soda in most of the cases, and latterly sulphite of magnesia. The quantity administered varied from 60 to 240 grains a day—the most usual quantity for adults being from 120 to 180 grains a day.

[The average mortality of the cases treated by sulphites was one in ten, and of those treated in other ways, one in 10·3.]

The total mortality shown is the same in those cases which were treated with the sulphite as in those treated without; and although in the former class the mortality is somewhat smaller among the females, among the males it is somewhat larger: the difference in either case must, therefore, be considered as due to some cause apart from the operation of the sulphite. The sulphite seems, therefore, to have produced no effect whatever upon the issue of the cases either favourable or the reverse. Neither, during the progress of those cases which recovered under its employment, was there any amelioration perceptible in the concomitant symptoms and complications; nor, in those cases in which the range of temperature was regularly noted by means of the thermometer, was any effect observable either as regards the degree of elevation of temperature, or the period of the case at which the defervescence was complete.

Lest it may be surmised that in the sixteen fatal cases the employment of the remedy was not commenced sufficiently early, I may state that in eight of them its administration was begun on or before the sixth day (in 1 so early as the third day; in 2 on the fourth day; in 1 on the fifth day; and in 4 on the sixth day).

In addition to these hospital cases, I have tried the sulphite in several cases in private practice, with the same absence of effect. Two of these cases ended fatally, in one of which the the sulphite of magnesia was given in half-drachm doses every four hours so early as the third day; in the other, it was not commenced till the sixth day.

In a considerable number of cases, especially among the females, the sulphite induced diarrhœa. This inconvenience would be easily obviated, however, were its administration of importance, by combining with each dose a few grains of compound ipecacuanha powder. Sometimes also, but not so frequently, the sulphite provoked vomiting.

If the sulphites possess any curative power whatever when administered after the full development of typhus fever, some manifest difference should have been observable in the course and result of the 161 cases in which they were employed, as compared with the remaining 723; and although the number of cases treated by the sulphites is not very large, I think that the facts elicited are abundantly sufficient to prove the uselessness of annoying such patients with the disagreeable draught, for the taste is sufficiently nauseous.

It should not surprise us, however, in my opinion, that the sulphites have so little, or rather no effect, when administered in a case of typhus, for the conditions differ very much from those in Professor Polli's experiments. In those experiments the blood was first charged with the anticatalytic, and this being done, the virus was then introduced. But in practice, when we wish to employ the sulphite to counteract the fever-poison, we have to meet a very different state of matters. The poison has been received into the blood; the period of incubation is past, during which the poison has been doing its work unopposed, and it has matured into the full development of the fever before the anticatalytic is introduced to counteract the morbid process. In order to render the experiment parallel, the virus should be first injected into the veins, and after the symptoms of septicæmia have developed themselves, the administration of the sulphite should be commenced. On the other hand, to have a case parallel to Prof. Polli's experiments, the sulphite should be given before or immediately after the patient has become infected—a condition which is obviously unattainable. Although useless, therefore, after a fever is fully developed, I believe it to be quite probable that if—in the case of scarlet fever, for example, appearing in one of a crowded family, the other members of which could not be separated from the individual affected—the healthy members were to take the sulphite daily, they would be likely either to escape the disease altogether, or to suffer from it in a mild form; and under such circumstances, I think, it would be very desirable to give the remedy a full trial. It has often occurred to me that an instructive experiment, tending to show whether the sulphite has any value in this direction, could be very easily made by means of vaccination. A few children, about to be vaccinated, might be treated with the sulphite of magnesia for a few days before the performance of the operation, and the trial made, whether, under its influence, the inoculation of the vaccine virus would produce the usual effects.

Having seen the inutility of the sulphites in the treatment of typhus fever, I have not made any trial of them in the treatment of the other exanthemata. There remains, however, a class of diseases in which, I believe, they have been proved to possess great value--I mean, cases of purulent infection, or septicæmia. In midwifery practice, for instance, such cases are common enough. We have cases of abortion, in which the ovum is imperfectly expelled, and in which portions of the placenta are left adherent to the uterus, which shortly become putrid. In such cases the most serious consequences frequently ensue from the absorption into the blood of the putrescent material. In cases of adherent placenta, likewise, at the full term, the same peril is present. Under such circumstances we possess, I believe, in the sulphites a very effectual means of reducing the danger to a minimum. I have had several such opportunites in practice of testing the power of the sulphites, and with the most satisfactory results. One very marked case occurred to me within the last few weeks. After a very protracted and difficult case of labour, in which the child was hydrocephalic, the head requiring to be opened before delivery was effected, the placenta was found to be adherent. It required to be scraped from the uterus over its whole extent by the fingers, and doubtless numerous small fragments were unavoidably left here and there adherent, as was partly proved by the occurrence, a few days later, of considerable hemorrhage, which was arrested by means of ergot. The woman lost much blood before the extraction of the placenta, was much exhausted by the long labour, and the uterus contracted very imperfectly. The disharges soon became putrid, and the patient was just in the condition to favour the absorption of the putrescent fluids by the uterine vessels. I put her at once under treatment by half-drachm doses of the sulphite of magnesia every fourth hour. For a few days she was in a high fever, but nevertheless she made a rapid and complete recovery, and was able to walk out of doors within three weeks after her delivery. Several other similar cases have occurred to me, to give the details of which, however, would be of little use. They were either cases of delivery at the full time, in which, from retention in the uterus of coagula of blood, or of fragments of the placenta, the lochia became putrid; or cases of abortion, in which the placenta came away piecemeal, and in which, under the employment of the sulphite of magnesia, the constitutional symptoms were either slight or entirely absent. To be of any avail, I believe the remedy must be given in considerable doses, from half a drachm to a drachm every fourth or sixth hour, and, still more, that its use must be commenced early in the case, either before or immediately on the appearance of the constitutional symptoms. In one case of abortion in which the sulphite was not given until after the development of symptoms of blood-poisoning, it had not the slightest effect in mitigating the course of the disease, and the case ended fatally.—*Edinburgh Medical Journal, Sept.* 1869, *p.* 210.

5.—ON THE TREATMENT OF CHOLERA BY INJECTION OF MORPHIA.

By Dr. W. Bates.

[The following is a letter written by Dr. Bates to Mr. Leigh, the Medical Officer of the Manchester Corporation. After giving the address of the patient he continues :]

I saw the case for the first time at 11 o'clock a.m. The first symptoms had commenced seven hours previously by vomiting and purging. When I saw her she was in the *algide stage*—rice-water evacuations from the stomach and bowels, no pulse perceptible at the wrist, voice husky, and the skin had a contracted and pinched appearance throughout its whole extent; skin cold, and expired air cold; thought she must die every minute.

Whatever the poison of cholera may be, a mycoderm or otherwise, such poison produces "tonic" spasm of the involuntary, and "clonic" spasm of the voluntary, muscular tissues. For this spasmodic condition, I have employed the hypodermic administration of morphia.

In my case, on Thursday, I introduced four minims of Robert's solution of morphia over the stomach, and returned to see the effect in an hour afterwards, when I found the abdomen warm, which had been previously cold. I then introduced four more drops, and left the case for three hours, when I found it much improved,—spasm of the involuntary muscles much less, countenance much improved, body warm, pulse quite perceptible at the wrist; vomited once only in four hours; still purged; stomach had begun to retain fluids. At 8 p.m. reaction had fully taken place, and the case has since been treated for one of ordinary diarrhœa.

I think the means used in this case, and the success which has attended it, are worth the attention of the medical profession and the public.

The origin of the poison in this case, on examination, is quite evident. The well from which they are supplied with water, the main sewer for the property, the cesspools and middens, are all in a sandy soil, within three yards of one another.

I last year employed the hypodermic method in the third stage of cholera in the same township to relieve hiccough, sickness, and want of sleep, and found it to relieve hiccough immediately, and produce sleep, with diminution of vomiting.—*Lancet, Aug.* 21, 1869, *p.* 282.

6.—ON INDISCRIMINATE STIMULATION IN CHRONIC DISEASE.

By Dr. Francis E. Anstie, Senior Assistant Physician to Westminster Hospital.

It will be well to begin our criticism of stimulation in chronic disease with an enumeration of the undoubted instances in which there is a distinct toleration for large doses of alcohol. 1. There assuredly is a marked tolerance of this kind in many cases of chronic debility which have been induced by one or more copious *hemorrhages.* 2. There is a variety of pulmonary phthisis, especially common in persons with delicate skin and slight frame, with marked tendency to colliquative sweating, and a notable inability to assimilate either ordinary foods or fatty matter of any kind, in which the tolerance for large and long-continued doses of alcohol is very remarkable, and the benefit produced by such treatment is very great. 3. In certain chronic neuralgias of the aged, where the power of digesting ordinary food is almost suspended by reflex irritation, an almost exclusively alcoholic diet continued for some time occasionally works wonders. 4. In certain infantile chronic diseases, attended with marasmus and an inability to digest ordinary food, small and frequent doses of alcohol, continued for some weeks, produce a remarkable revolution in the general condition.

In all the above instances there is a very notable tolerance of alcohol, and an absence of intoxicative symptoms, under the use of doses which are apparently very considerable.

We turn now to the other side of the account, and the facts we meet with here deserve the most serious consideration of the profession. There are two vast groups of neuroses, the neuralgic and the convulsive, and a third which includes the thousand and one forms of hysteria and of hypochondriasis, for which alcohol is frequently prescribed with a recklessness that to me is both surprising and alarming. Medical science has made the discovery within the last few years that pain, convulsion, and mental disturbance *always*, and not merely sometimes, imply a lowered rather than a heightened vital power. The fact itself is important and valuable, but the practical conclusions which many physicians deduce from it appear to me disastrous. The diseases in question are "nervous;" it is the nervous power, then, which is to be upheld; and a so-called "stimulant" is supposed to be the especially appropriate remedy. But the very hypothesis of the opponents of Todd's ideas is that a stimulant has no permanent influence on the forces of the body, it contributes nothing but a momentary spur to function; it must therefore be frequently repeated to be of any use; and the greater the depression the larger the dose necessary to rouse the failing organism.

We arrive then at this result, which would be grotesque if it were not most unfortunate: That for the very same purely theoretical reason that makes them reject alcohol in acute diseases, and especially decry its use in large doses, a very influential sect of physicians are in the daily practice of recommending its free use in circumstances of chronic disease, where it assuredly can produce mischief of the most permanent kind. The opponents of Todd say, that there are two dangers in the use of alcohol in acute disease: first, that it endangers life; and second, that if life be spared the tendency to drunken habits is left behind. Putting aside the first of these accusations—which, however, I should entirely deny, as applied to the intelligent application of Todd's principles—let us deal with the second. It is not true, I believe, that the administration of alcohol to patients in acute diseases is *pleasant* to them; on the contrary, the perpetual dosing with wine or brandy, which is necessary in a certain proportion of cases, is almost uniformly most distasteful, except with inveterate topers, and sometimes even to them. Whether the alcoholic beverages do good or harm, at least they are not liked, in the great majority of cases, and the patient is left, at the end of the treatment, with a loathing instead of a love for them. Still they can be got down, and retained on the stomach, so long as tolerance, or absence of intoxicative consequences, is observed. But a time comes when this physiological tolerance ceases, and along with its cessation there almost always comes a positive shuddering dislike, and often a downright refusal, of the stronger alcoholic beverages. The convalescent may relish *beer* in moderation, but in my experience he almost always hates the idea of wine or brandy. There is no statement which has ever surprised me more, by its entire want of correspondence with the facts of my own experience, than this very common assertion, that stimulation in acute disease is apt to create a subsequent tendency to drinking. The case is vastly otherwise, however, in chronic or nervous diseases, especially those attended with much mental depression. The great majority of these patients either at once, or very readily, develop a strong liking for alcoholic beverages ; a liking, too, which is precisely of the most dangerous kind. I cannot take a better illustrative instance than that which is unfortunately so very common—the case of women who, whether married or not, have difficult and painful menstrual periods, accompanied with neuralgic pain and hysteric depression of spirits. If ever there were a case in which the physician may make himself, in the most tragic sense, the evil genius of his patient, it is this. The woman has pain, or spasm, or both, and the doctor tells her that brandy will relieve these symptoms, which is true enough. It is also true, that if the brandy could be administered strictly as a medicine, regulated to the minimum dose which was necessary, no harm would be done, though no permanent cure could be expected. But if it be left to the patient herself to settle the dose, there is the greatest danger that she will exceed the necessary quantity, and instead of taking a moderate stimulant dose, which would relieve pain without narcotising, will take a quantity which produces semi-intoxication. There is no more dangerous trial, for a female who is subject to these periodic attacks of pain and depression, than that first experience of alcoholic narcotism. In such circumstances it is a melancholy fact, that the *oblivion* of slight drunkenness is most seductive ; and the chances are great that on the recurrence of the same symptoms the patient will long, with increasing eagerness on each successive occasion, for the same luxurious stupefaction. Let no one think that this warning is the expression of fears based on mere imagination ; my own experience has supplied only too many instances of the reality of the danger, and inquiry among physicians whose practice in nervous diseases is large has added greatly to the strength of my convictions. I have for a long time made it a rule *never* to recommend, or even allow, a patient subject to ovarian neuralgia to take alcohol at all, except in the ordinary quantities *with meals.* Pain and nervous depression is best quieted with small subcutaneous injections of morphia, or, still better, of atropia. It is a very bad precedent to permit a woman to take alcohol for the mere momentary relief of pain or depression.

Although the instance above cited is, perhaps, the most striking illustration of the dangers of indiscriminate stimulation in chronic disease, there are many others scarcely less important. The whole group of chronic painful and convulsive disorders stands in the same relation to alcohol. The remedy can be administered strictly *as a medicine*, in small stimulant doses, with good effect. But there are moral elements in the case which we cannot, without grave peril, leave out of sight. The patients are very generally weak in their power of mental resistance, so that to expose them to a temptation is more than usually dangerous. Some persons will be surprised at this statement, and no doubt there are splendid exceptions to be found in individual cases; but I am convinced that the rule is such as has been stated. To the few who bear up heroically, and with undiminished intellectual and moral force, against chronic pain and mental misery, must be opposed an overwhelming majority who do not bear up at all, or who do so only by drowning their troubles either in actual physical narcotism, or else in some factitious emotional intoxication, which is nearly or quite as bad as the other. Therefore, to put such an agent as alcohol into the hands of such persons, or in any way to encourage their taking it at other than the usual mealtimes, under the restraint of the presence of other persons, is to court danger in a most direct way.

It seems to me that there are two rules, the observance of which ought to become general, and only to be departed from under very special circumstances. One is that alcohol should never be directly prescribed for the relief of chronic pain, convulsion, or spasm, during the *self-conscious* period of life. In infancy and early childhood it is quite possible to administer it exactly as one would a medicine, without leaving the faintest trace of a hankering after its illegitimate effects. In the old age of those who have led temperate lives, but have habitually used alcohol, it may also be possible to permit the somewhat freer use of it. But during the whole of that period which corresponds to the sexual life, especially in women, the organism is so exquisitely alive to its own emotions, that the effect of a false step in the direction of narcotic indulgence may be tremendous. A second rule is that never, under any circumstances where it is possible to avoid it, should alcohol be given for the class of maladies we are considering, in larger quantities than those already roughly indicated as the limits of its useful *dietetic* employment in health. There is no true physiological tolerance for it in these cases; even in the instance of severe and agonizing pain, in which large quantities of brandy may be swallowed without any apparent drunkenness, the appearance of considerable quantities of unchanged alcohol in the urine, and the occurrence of after headache, &c., show that there has been true narcotic poisoning. And the relief of such pain (*e.g.*

angina pectoris, severe ovarian neuralgia) may be better and more speedily accomplished by the use of ether, or of morphia or atropia subcutaneously injected. And as for the whole series of chronic convulsive disorders, and of the mental states which hover between hysteria and insanity, I am convinced that everything which can be done in a more special direction than that of careful improvement of nutrition can be far better effected by bromide of potassium, than by the most liberal use, or as I should call it abuse, of alcohol.—*Practitioner, July* 1869, *p.* 34.

7.—THE SULPHO-CARBOLATES IN THE TREATMENT OF DISEASE.

By Dr. Arthur Ernest Sansom, Physician to the Royal Hospital for Diseases of the Chest, City Road; to the North-Eastern Hospital for Children, &c.

[The ease with which fermentation may be arrested by the addition of small quantities of such substances as oxide of mercury, of strychnia, or of solution of the sulphites is remarkable. Why should not the progress of zymotic diseases—that is the fermentation going on in the blood in these diseases be checked with equal ease.]

It being proved that disease-germs are capable of destruction whilst they are outside the individual organism exposed to their influence, the question next occurs. Is it possible to destroy such organised molecules, when once they have entered the living body and have commenced that action which is manifest in the production of phenomena of disease? That such a thing has no *primâ facie* impossibility is shown by the fact that we are frequently employing internal remedies to destroy entozoa having far higher vital endowments. Furthermore we have evidence that the very drugs which we have been accustomed to administer in zymotic diseases have themselves great power as antiseptics or destroyers of germs. I have myself determined experimentally that the fermentation of two fluid drachms of yeast mixed with 25 grains of sugar, and placed in circumstances the most favourable for the process, is wholly arrested by the following: —Liq. hydrargyri bichloridi, half a drachm; tincture of the perchloride of iron, five minims; sulphite of soda, five grains; sulphuric acid, one-tenth of a grain. Fermentation was *almost* wholly arrested by five grains of acetate of lead.

It is obvious that these various agents in arresting fermentation cannot manifest their effects wholly and solely in virtue of their chemical powers. Most of them are admitted to be oxidizing agents. But how totally insufficient must be the quantity of oxygen which the efficient amounts of the various compounds are capable of liberating to chemically alter the oxidizable stuff of the ferment plus the fermentescible matter! Sulphite of soda is a *de*oxidizing agent; its power can be estimated by the quantity of oxygen which is required to convert it into a sulphate; this quantity is less than one-sixth of its weight. Five grains, therefore, of sulphite of soda would absorb considerably less than one grain of oxygen, the merest fraction of the oxidizable matter present in the sugar employed.

When we take into consideration the observed effects of sulphurous acid and the sulphites in arresting the vitality of living things, we must, I contend, conclude that these are far less chemical agents than they are poisons to the low forms of life. When we consider the myriads of germs which a few grains of a sulphite is capable of destroying, we have a *primâ facie* ground for administering them to the individual body which is suffering the decompositions of disease. We find that the administration is attended by no deleterious effects to the higher organism. Moreover, that the salts administered do possess that power of arresting internal decompositions which we have proved them to possess in regard to external fermentations, is established by the fact that if the sulphites be freely administered to a living animal, its tissues after death do not present the phenomena of decay.

These observations as to the mode of action of the sulphites pertain with greatly increased force to carbolic acid. It is proved that a mere trace of carbolic acid kills all the low forms of animal and vegetable life, arrests fermentation, and forbids decomposition. Yet not only is it shown that it exerts scarcely any purely chemical action and interferes with scarcely any purely chemical change, but its elements ($C_6 H_6 O$) are precisely the same as those upon which it exercises its influence. It seems to be impossible that we can disregard the testimony of the host of observers that have declared to the efficacy of carbolic acid in arresting the spread of disease when employed as a disinfectant. Now if it has, as the able chemists have determined, no appreciable chemical action on decomposition and its products, while it instantly destroys all living germs, we are in this dilemma: either we must agree to the germ theory, or we must acknowledge that the national resources have been expended, in times of cholera, on a body which is inert and useless.

The internal diseases in which, according to the records of observers, the administration of carbolic acid has been attended with success are the following:—Dyspepsia, diarrhœa, dysentery, cholera, croup, diphtheria, hooping-cough, bronchitis, phthisis, erysipelas, syphilis. In most of these diseases it will probably be acknowledged that various decompositions are taking place within the body, which, according to experience derived from its operation outside the body, we may consider that carbolic acid has an *à priori* likelihood of arresting.

In my opinion, however, experience has shown that there are difficulties, and even dangers, in the administration of carbolic acid. 1. It is of a very nauseous odour and taste, so that, even in extreme dilution, it is difficult of administration, especially to children; 2. its thorough solution in unaccustomed hands is not very easily accomplished; 3. it is a violent irritant of sentient surfaces, so that it can possibly be administered in only small amounts; 4. it has a peculiar caustic action on animal membranes, evidenced by its turning mucous surfaces of a dead white colour; 5. it has a toxic action, producing hyperæmia of the nervous centres; 6. it forms compounds possessing varying modes of action with different organic compounds—with alcohol, glycerine, fats, &c.; so its effects will probably vary not only with the medicinal adjuncts with which it is administered. but with the nature of the contents of the stomach at the time of administration.

The double salts of carbolic acid which I have introduced, and whose physical characters, &c. I have described in a paper read before the Royal Medical and Chirurgical Society on March 9th, 1869, will, I think prove to possess, as remedial agents, the advantages, without the difficulties and dangers, of carbolic acid. These are salts of the double acid, sulpho-carbolic acid.

SULPHO-CARBOLIC ACID (*Syn.* Sulpho-phenic acid, $C_6 H_6 SO_4$) is produced by the admixture in equivalent proportions of sulphuric and carbolic acids. I have obtained the pure double acid in the form of very long, colourless, finely-acicular crystals, which are very deliquescent.

THE SULPHO-CARBOLATES are produced by neutralization with the various bases. I have succeeded, with the help of Messrs. Balmer, in producing fine specimens of the salts of sodium, potassium, ammonium, magnesium, zinc, iron, and copper.

Preparation.—I have found many specimens lacking the true characteristics of a sulpho-carbolate. The danger is contamination with: 1, the sulphate of the base employed; 2, the carbolate which evolves the odour of carbolic acid; 3, free sulphuric acid; 4, free carbolic acid. The best method is to produce first a definite sulpho-carbolic acid by taking equivalent weights of its components, and to neutralize with the calculated weights of the oxides employed. Crystallization should take place slowly without heat.

Tests.—Each sulpho-carbolate should possess a definite and decided crystalline form. They should give off scarcely any odour of carbolic acid; they should give no precipitate with barium chloride. If boiled for some time with strong nitric acid, and then diluted with a little water, a yellow crystalline deposit of picric acid should be thrown down, and the filtrate should give with barium chloride the reaction of sulphuric acid. On a crystal being dissolved in distilled water, and a few drops of solution of perchloride of iron added, a beautiful purple or mauve solution should be produced. I have found $\frac{1}{60}$ grain of sulpho-carbolate of sodium capable of inducing the mauve tinge.

Mode of Action.—It must not be supposed that the sulpho-carbolates are powerful *direct* antiseptics; I am convinced that they are far less powerful than carbolic acid. From experiments which I have made I conclude that, in regard to prevention of fermentation, half a grain of pure carbolic acid is equivalent to twenty grains of sulpho-carbolate of sodium. It may therefore be concluded, that not only is the salt as compared with the acid far less efficient in destroying the life of vegetable cells, but also that the acid loses in this power by its combination with the base; *i.e.* that the same amount of carbolic acid, when free, is equally efficient with nearly twenty times that amount when in combination. The important characteristics, however, of these salts are, in my opinion, (1) that they can be readily administered to the living animal body without difficulty or danger; (2) that *in transitu* throughout the system the carbolic becomes evolved, producing its beneficial effects. When sulpho-carbolate of sodium has been administered to an animal, sulphate of sodium is found in the urine and in the tissues, while carbolic acid escapes with the breath. The flesh of the animal resists post-mortem putrefaction.

By administering sulpho-carbolate we are enabled in effect to administer carbolic acid in an innocuous form, and in a quantity which it would be impossible to employ by other means.

Practical Employment.—The *sulpho-carbolate of zinc* has been chiefly used as an external application in the form of lotion. Mr. John Wood was, I believe, the first thus to employ it. Three to ten grains should be dissolved in an ounce of distilled water. The effect on suppurating surfaces is marked in the arrest of pus-formation and the abolition of all fœtor. Mr. Wood believes with me, that by the influence of the organic constituents of the suppurating surface the sulpho-carbolate is decomposed and carbolic acid is evolved. It is greatly superior to carbolic acid, on account of the absence of irritating qualities, and of all unpleasant odour. I have used it as an injection in gonorrhœa, the discharge of which it at once checks.

For internal administration I have chiefly used the sulpho-carbolate of sodium. This is freely soluble in water, and the solution has scarcely any objectionable taste. Children take the pure salt readily.

Dose.—From repeated trials I convinced myself that doses of from twenty to sixty grains could be readily absorbed. I have now employed it in about 200 cases. In not more than six out of the whole number have any direct contra-indicating effects been produced by the drug. In two cases sickness occurred, in the others a feeling of slight stupor or powerlessness was produced, which passed away in a few minutes.

Use in Phthisis.—In my paper read before the Royal Medical and Chirurgical Society I gave an analysis of thirty-five cases of phthisis, in which I administered sulpho-carbolate of sodium in doses of ℈i to ʒi. I considered this table as proving that the drug could be given for periods averaging two months without the production of any ill effect. On the other hand, there was for the most part a steady gain in nutrition. A further experience has confirmed and increased my belief, that in the sulpho-carbolate of sodium we have a drug valuable in the treatment of pulmonary phthisis. I do not believe that it has any special power in arresting the progress of tuberculisation. Rapid cases occur over which it appears to have no control whatever; but over the accidents of tuberculhæmia it seems to me to exercise a benignant influence. Under the treatment, I have found in many cases strength increased, rest improved, fœtor of expectoration arrested, night sweats removed, and appetite increased. I have made an analysis of fifty-two cases treated by the sulpho-carbolate. These include ten in the *first stage* of the disease; eight of which manifested decided improvement. In one case the local signs disappeared; one gained in weight 2½ ℔s. in three weeks; another, 2 ℔s. in six weeks; a third, 6 ℔s. in five weeks; and a fourth, after manifesting great improvement, left off all treatment, and on my observing him three months afterwards, he had gained 9 ℔s. On the other hand, one case manifested sickness and progressive loss of weight, and the drug was discontinued; and the signs in another case were doubtful.

In the *second stage* I observed thirty-one cases. Twenty-four testified to considerable improvement, for the most part manifest in increased strength and energy. A gained 1 ℔. in a fortnight; B, 1 ℔. in six days; C, 3½ ℔s. in a month; D, 1 ℔. in two months; E, 3 ℔s. in three months; F, 8 ℔s. in two months; G, 2 ℔s. in three weeks. In one case in which the temperature was carefully noted it fell from an almost constant 97·6° Fahr. to an almost constant 95·6° Fahr. On the other hand, in one case which at first manifested improvement the disease quickly progressed; the same happened in a second case, who attributed his symptoms to domestic trouble. One case rapidly went from bad to worse, and in six there was no improvement.

In the *third stage* I noted eleven cases. One case rapidly improved, the patient expressing himself as "feeling a different man." One gained 2 ℔s. in a fortnight, and on observation two months after had further gained 2½ ℔s.; another gained 2¾ ℔s. in two months; four testified to feeling increase of strength. Three, however, showed no influence exerted over the fatal course of the disease, and two were doubtful. Altogether I conclude that but very little good is done by the drug in the third stage of the disease, but enough evidence exists to warrant that it may exercise a beneficial influence over the conditions in the first and second stages.

My experience of the use of sulpho-carbolate of sodium in *zymotic diseases* is unexceptionably favourable. During twelve months I have administered it in every severe case which has fallen under my observation. I have not had one fatal result. I have, however, always strenously endeavoured to guard against a prematurely uttered conclusion. I only hope for a fair and impartial trial of the mode of treatment by my professional brethren.

Severe Tonsillar Ulceration.—I employed the treatment in five cases, which all rapidly recovered without the occurrence of suppuration. The first case in which I thus employed it was that of Mr. H., to whom I was called by a message expressive of great urgency, on December 4, 1867. I found the patient suffering extreme pain and inability to swallow, salivation, voice greatly impaired; pulse 120, and much febrile excitement. He had been my patient the previous year with similar symptoms, though of less severity. There then occurred much suppuration, and the patient was confined to his home for about a fortnight. This time, anticipating a similar history, I counselled absolute rest, demulcent drinks, and half a drachm of sulpho-carbolate of sodium in solution every four hours. I arranged to call the day but one following; on doing so I found to my surprise that my patient had gone to business. He subsequently called on me professing himself quite well; the ulcerated tonsils were cicatrising. All the other cases recovered uninterruptedly. Of course such results may have been fortuitous, but they were strangely different from those of my former experience, and I now never hesitate to use the sulpho-carbolate in analogous cases.

In a case of *diphtheria* with abundant false membrane I administered the sulpho-carbolate of potassium. Perfect recovery took place; but as brandy and beef-tea were assiduously administered, I should hesitate to attribute to the sulpho-carbolate the chief share of the success.

I employed the sulpho-carbolate of sodium in five severe cases of *scarlet fever*. In one of these cases the thermometer in the axilla indicated 105° F., in another 103° F.; in the former there was slight albuminuria on one day, which disappeared the day following; on the twelfth day of the fever the temperature had fallen to 93·2°. Recovery was perfect, rapid, and uncomplicated. In another case, though there were on the first two days severe throat-signs, a universal rash, and subsequently the most perfect desquamation, there was so little *malaise* that the patient, a little girl, was dressed each day and continued her play as if in health. All the cases recovered in a less period of time than under any treatment which I had previously employed in similar cases.

I employed the sulpho-carbolate of sodium in two cases of facial *erysipelas.* Both evidenced extreme febrile symptoms. I had only a single opportunity of using it in *variola;* the patient, a middle-aged gentleman, had been vaccinated in childhood; he recovered rapidly.

It is only in the hope that my professional brethren will give the plan of treatment a trial that I record these few imperfect observations. Individual experience may indicate a possible solution of certain of the therapeutic problems presented by these diseases, but it can never pretend to anything approaching rigid scientific accuracy. The zymotic poisons differ not only in themselves, but in the secondary conditions which they induce; and a treatment successful in the case of one may be unsuccessful in the cases of others. I believe that almost every day we are accumulating data which tend to the elucidation of their nature and history. The practical problems of the too much neglected art and science of therapeutics are only to be solved by the study of the results of accumulated individual observations, and by organised experience.—*Practitioner, July*, 1869, *p.* 5.

8.—OPINIONS OF IRISH PHYSICIANS ON THE TREATMENT OF ACUTE RHEUMATISM.

From Dr. Charles Benson, Physician to the City of Dublin Hospital, and Professor of Practice of Medicine in the School of the Royal College of Surgeons.

The treatment which I generally prefer is "the alkaline;" giving the bicarbonate of potass, for the most part, with lemon juice in effervescence, sometimes with decoction of cinchona, or with colombo, according as may best suit the stomach, or condition of the patient in other respects. I usually combine colchicum and digitalis with these, giving, in 24 hours, from 30 to 60 minims of each, and at bed-time an opiate. My favourite opiate is Dover's powder—10 or 15 grains at night, and, if there be much suffering, 5 grains three or four times a day in addition. I think the colchicum helps to eliminate the *materies morbi* from the system, and I fancy the digitalis promotes the same object, while by its sedative influence it lessens the danger of cardiac complication. I do not prescribe the bicarbonate of potass in such large quantities as Dr. Fuller recommends. It is too lowering for the citizens of Dublin. I seldom use more than 4 drachms in the day. Sometimes I give a little iodide of potassium also, and when the patient is scrofulous or tainted with syphilis, this appears to be useful. In delicate or scrofulous subjects I give cod-liver-oil freely, and the iodide of iron or some other chalybeate. I regulate the bowels with injections of soap suds, to which I add a little soda or potass to follow up the alkaline plan, without too much distressing the stomach. When a joint is particularly painful I put on poultices of linseed meal, containing some potash or soda, and when effusion takes place into a joint I often have recourse to a blister. The jerking pulse and impulse which precede the murmur of endocarditis for 12 or 24 hours suggested to me the employment of digitalis, and I think it is of use as I said. When the heart is threatened, which may always be known by the jerking pulse and impulse, I apply blisters to some of the joints, and just below the left nipple—pushing the opiates and digitalis remedies still further.

From Dr. Henry Freke, Vice-President College of Physicians; Physician and Lecturer on Practice of Medicine Steevens' Hospital, Dublin.

The result of my experience is simply this :—I am strongly of opinion that although we can mitigate symptoms, we at present know of no means whereby we can cut short the disease, or with any approach to certainty reduce its duration. That there is no constancy to be recognised in the duration of the disease, but that either with or without treatment it *may* terminate in a fortnight or *may* last for two months. That if two patients in apparently similar circumstances, and presenting in every respect similar symptoms, be placed on the same line of treatment, one will occasionally recover in the course of twelve or fourteen days, while in the other the disease will frequently have a duration of seven or eight weeks, and that *whatever* be the line of treatment adopted.

From Dr. Samuel Gordon, Physician Richmond, Whitworth, and Hardwicke Hospitals; Lecturer on Practice of Physic Carmichael School of Medicine.

I have no doubt but that the alkaline and diaphoretic plan of treatment is of essential service in shortening the duration of rheumatic fever, and in lessening the probability of cardiac diseases. Even unaided, when carefully carried out it is of great value, but I attach much importance to the constitution of the patient affected, and to the fact of it being a primary attack or otherwise. The preparation which I generally use is the combination of bicarbonate and citrate of potass—that is, I give very large doses of bicarbonate of potass in effervescence with lemon juice—giving a large excess of the bicarbonate.

If the patient be of a strong constitution and the attack a primary one I usually add small doses of tartarised antimony with great advantage. I think that when the depressing effect of antimony on the heart can be produced without vomiting, it proves more serviceable in averting cardiac complications. This was the plan of treatment usually adopted by the late Dr. Crampton, after he had given up the practice of venesection, and it was followed by great success. I need not say that it does not interfere with the use of opium but rather assists it. The use of opium I consider to be indicated in those cases in which the fibrous structures are much engaged, and when not contra-indicated I always prescribe it in the form of Dover's powder; but I never use the opium without having first tried the alkaline and diaphoretic plan for at least 24 hours.

In asthenic constitutions or when the attack is not primary I find great advantage from the addition of large doses of the iodide of potassium, combined in this as in all other cases in which I use it, with small doses of aromatic spirit of ammonia.

When there is much local distress I apply the vesicating collodion freely, and afterwards a warm solution of the bicarbonate of potass covered with French wadding and sheet gutta-percha.

With regard to the occurrence of endocarditis as indicated by endocardial murmur, I have long taught that the sign is most fallacious; the most severe, and most intractable cases of endocarditis which I have witnessed have been unaccompanied by any murmur (vide Dublin Hospital Gazette, April 1, 1857), and on the contrary I am satisfied that on account of the existence of an endocardial murmur, numbers of cases are recorded as endocarditis in which no inflammatory exudation has occurred.

From Dr. Hayden, Fellow and Censor King and Queen's College of Physicians; Physician to Mater Misericordiæ Hospital; Professor of Anatomy and Physiology in the Catholic University.

In acute rheumatism of the decidedly sthenic type, of which I have seen comparatively few cases within the last six months, I have given full trial to the alkaline treatment.

My experience of it is, on the whole, favourable. It never fails to alleviate articular pain when pushed to the extent of rendering the urine alkaline in reaction. It should always, when not contra-indicated by other considerations, be pressed to this point, short of which it fails to give relief.

I am convinced, however, that the alkaline treatment, carried even to the point just indicated, does not confer certain immunity from cardiac complication, *e. g.*, a man aged 45, temperate, was admitted to hospital under my care on the 5th May, 1868, suffering from acute articular rheumatism, engaging most of the larger joints, but chiefly the left elbow; the cardiac sounds and action were normal. He was at once put under alkaline treatment as follows, viz.:—

℞. Acetat. potass. ʒiv.; bicarbon. potass. ʒii.; tinct. opii ʒi.; mist. camphor ad. ℥viii. St. coch. mag., 2nd q. horâ.

On the following day the urine was neutral, and the articular pains less severe, and on the next (May 8th) the urine was decidedly alkaline in reaction; but the patient was not so well. He had raved through the night, and was fidgety and somewhat incoherent; pupils contracted, and conjunctivæ injected. He likewise had cough with mucous expectoration, and complained of pain in the situation of the right nipple. Cardiac sounds normal, and action rapid; cardiac complication anticipated.

May 9. *Mane;* patient rather pale; pupils much contracted; pulse 144, weak, and less full; respiration quick and embarrassed. He is incoherent, a loud double friction-sound audible over the entire precordium, but loudest and most distinctly of an "attrition" character at the apex; no increase in area of precordial dulness. Mercury was now substituted for the alkalies, and wine was given in doses of one ounce every second hour. He became rapidly worse, and died at 8 p.m., having had a fit of convulsions a short time previously. A *post mortem* examination was not permitted, but the area of precordial dulness was ascertained by percussion to be much extended; the precordium likewise projected.

Here then was an example of pericardiac, and likewise in all probability of meningeal engagement in acute rheumatism, whilst the blood was actually saturated with alkali.

In the subacute form, or that in which the febrile symptoms are less decidedly acute and sthenic, the pulse under 100, the tongue but moderately coated, the skin not remarkably hot, and but barely moist, urine not copious, and exhibiting lithates in small proportion, articular pains not urgent, and swelling moderate—in cases of this character, of which latterly I have seen but very few, I have found the best treatment to consist in lemon-juice, wine, and sustenance. Cardiac complication is very rare.

During the last six months rheumatism of the low or asthenic type has been very prevalent in Dublin, and almost to the exclusion of the ordinary acute form of the disease. It has been characterised by severe pain of a singularly migratory character, in the fibrous structures of and in the vicinity of the larger joints, but rarely engaging the synovial membranes; indeed, in no instance in my experience, save those of the wrist-joint and hand. The latter joints have been in many instances so suddenly invaded that in the course of a single night they have become swollen, red, and acutely tender, there having been no appearance whatever of such engagement on the preceding day, and only the premonitory symptom of slight stiffness.

The heart or pericardium (frequently both) has been engaged in the great majority of these cases, and the treatment which I have found most efficacious has been opium in large doses (gr. ii. of the watery extract twice or thrice daily), wine, porter, and animal food.

From Dr. Henry H. Head, Fellow of the College of Physicians; Physician to the Adelaide Hospital.

The result of my own observations has been decidedly in favour of the treatment by alkalies and their salts, in combination with the vegetable acids, in cases where the symptoms are very acute, characterised by quick, hard pulse, high temperature, and acid secretions, and where the constitution of the patient has been hitherto good; and I think I can assert, with perfect confidence, that where this course has been pursued, in combination with careful protection, cardiac complications have been extremely rare in cases where there was undoubted evidence that such lesion did not previously exist. There is, however, a good deal of difficulty in deciding this question, as the fatigue and exposure to which patients are subjected whilst being conveyed to hospital frequently cause an attack of endocarditis, which may undoubtedly exist without giving rise in its early stage to the usual physical signs, which only become apparent when lymph is effused. Two cases have recently come under my notice, in which the endocardial murmur was not observed, although carefully watched for, until the convalescence of the patient was considerably advanced, and at least twelve days had elapsed after the occurrence of symptoms, which led me to fear the existence of endocarditis, and which occurred a day or two after the patient's admission into the hospital.

In the case of patients who have suffered from repeated attacks of rheumatism, when the character of the fever is low, or the constitution previously bad, the alkaline treatment (if adopted at all) should be carried out with great caution, and should be combined or very soon followed by the use of quinine or bark.

Where the joints affected are numerous and the pain is very acute, I have found very great relief afforded by the blistering method suggested by Dr. Herbert Davies; but although the alleviation of suffering is considerable, I do not consider that this treatment shortens the duration of the attack. It is, in fact, impossible to lay down any one rule suitable in all instances, and whatever may be the theory regarding the nature of the disease, there can be little doubt that each case should be treated according to its own peculiar conditions.

From Dr. ALFRED HUDSON, Physician to the Meath Hospital.

My strong impression is that the early and free exhibition of the alkalies or their neutral salts is prophylactic of cardiac affections: I even believe that they are the best curative measure which can be employed when endocarditis has actually supervened.

In several instances I have known an endocardial murmur which commencing at an early period, had persisted throughout the illness to disappear gradually under the influence of large doses of the neutral salts, more especially of the acetate and nitrate of potash. One of these cases was so striking as to be worthy of mention.

A gentleman, aged 25, complained of tightness and pain in the precordial region, with a well-marked endocardial murmur at the apex about the end of the first week of rheumatic fever.

This murmur continued unchanged in seat or character during the illness and during his convalescence.

From the first appearance of the murmur I pursued the alkaline treatment steadily and continuously, giving a drachm of nitrate of potash and six drachms of bicarbonate of soda daily for many weeks.

Ultimately the murmur entirely disappeared; on the patient's death long afterwards, of a different disease, I had the satisfaction of learning that the heart was found to be perfectly healthy.

From Dr. HENRY KENNEDY, Physician to Sir P. Dun's Hospital, and to Cork-street Fever Hospital.

For some years past I have had the greatest confidence in what is known as the alkaline treatment laid down by Drs. Garrod and Fuller for acute rheumatic fever. Unless I disbelieve my senses I cannot doubt its great value in shortening the duration of this disease, for I recollect well when six and eight weeks were the common periods for a patient to be in hospital when labouring under this affection. Now, unless some complication arise, such as pericarditis, and this is, of course, exceptional, three weeks is about the time—that is, reckoning from the day the patient was submitted to the treatment. I have seen so many instances where patients have remained at home for ten to fourteen days, and yet no amendment had occurred, though they were necessarily confined to bed, that I cannot doubt the opinions lately advanced in London are erroneous, unless, indeed, we suppose the disease met in that city is different from what it is in Dublin, and this it is hard to do. Whilst, however, I thus speak in favour of the alkaline treatment, I do not limit myself entirely to it. In by far the majority of cases the disease is attended by very severe suffering. Hence I have been in the habit of joining the anodyne to the alkaline treatment, and, I believe, with the best results.

From Dr. ROBERT D. LYONS, Physician Richmond, Whitworth, and Hardwicke Hospitals; Professor of Medicine and Pathology Catholic University.

Dr. Lyons has had alarge experience in the treatment of rheumatic fever for some years past in his clinique at Jervis-street Hospital, and subsequently in the Hospitals of the House of Industry. In both Hospital and private cases he has, as we are informed, given trial to all the principal plans of treatment which have had any authority to recommend them, and as the result of observations conducted with care he has come to the mature conviction, that with certain adjuncts in the way of clinical manipulation of the affected joints, the alkaline plan of treatment offers advantages in which it is not approached by any other method of dealing with the malady. Dr. Lyons has, in fact, adopted for some five years past a settled mode of treatment of rheumatic fever, the details and principles of which may be thus briefly summarized :—

The patient is placed in a flannel jacket, and between blankets, the sheets being removed from the bed. The joints affected are assiduously poulticed with a mash of camomile flowers and poppy heads, reduced to a soft state by being simmered for from one to two hours. These poultices are removed and replaced by fresh ones at intervals of three or four hours, and thus this soothing application is kept up "hot and hot," so long as pain and swelling continue to be complained of, and so marked and immediate is the relief thus afforded that the patients will be found frequently to ask urgently for a fresh poultice to a joint which is becoming affected. To procure sleep, and to ease and tranquillize the patient in this very painful malady, from one-quarter to a half a grain, or even a grain dose of opium is given every third, fourth, or sixth hour, according to the age of the patient, and the distress and urgency of the symptoms.

The following alkaline mixture is next prescribed, the proportions and the vehicle of exhibition for which are altered according to the state of the patient's stomach. In eight ounces of the infusion of gentian, cascarilla, or any of the light bitters, half an ounce of the bicarbonate, two drachms of the acetate, and two drachms of the nitrate of potash, are ordered with half an ounce of any ordinary flavoring syrup. Of this mixture one table-spoonful is administered every third hour, except when the patient is asleep.

The diet is restricted to milk and any simple farinaceous food; and for drink, soda or kali water, or lithia waters in effervescence are allowed *ad libitum.*

From Dr. William Moore, King's Professor of the practice of Medicine; Professor of Clinical Medicine Sir P. Dun's Hospital.

With respect to the treatment of "Acute Rheumatism" Dr. Moore cannot fall in with the "do-nothing" system. He is an advocate for the alkaline treatment, and after having given those in use, individually repeated trials, he is disposed to place most reliance on the acetate or bicarbonate of potash, especially the latter, in doses varying from half a drachm to one drachm every fourth hour; having first relieved the chylopoietic viscera by a mercurial purgative. He has found this treatment, combined with an opiate at bed time, *fluid* diet, and keeping up a general high temperature, particularly over the affected joints (which is best done by wrapping them in raw cotton covered with oiled silk), very satisfactory.

Dr. Moore states that although not armed with statistics, his experience leads him to conclude that where the above treatment is steadily carried out, not only is the duration of the disease shortened, but endo and pericardial complications are of less frequent occurrence.—*Dublin Quarterly Journal, May* 1869, *p.* 431.

9.—CASES OF ACUTE RHEUMATISM TREATED PRINCIPALLY ON THE ALKALINE METHOD.

By Dr. Charles H. Robinson, Demonstrator of Anatomy to the Ledwich School of Medicine; late Medical Officer to the Peninsular and Oriental Company, &c.

The treatment of acute rheumatism has lately been subject to a good deal of discussion, since the communication brought forward by Drs. Gull and Sutton before the members of the London Medical and Chirurgical Society in January last, on the supposed inefficiency of medicine in this disorder, and their firm reliance on mint-water and cotton wadding in its management. I am, however, convinced that any unprejudiced observer who carefully examines the statements brought forward by Drs. Gull and Sutton will find, in the results obtained, a material difference from what those gentlemen would lead us to believe; and that their theory was unmistakably refuted by Drs. Fuller and Dickinson.

For my own part, I am a firm believer in the alkaline treatment of acute rheumatism; my chief reason for this belief being the satisfactory results obtained by this method far beyond any other, not only in the duration of the disease, but also in the almost total absence of pericarditis and valvular affections of the heart.

The following cases came under my notice when medical officer to the Cape mail steamers and Peninsular and Oriental Company, and I adduce them for several reasons. They all occurred at sea, and therefore were necessarily exposed more than on land to relapses. Some of the patients were passengers, some seamen; but, with one exception (Case 1), I had each under my observation from the very commencement of the affection, and long after it had terminated. In each the heart was carefully examined at regular intervals, and in none of the six cases was it ever implicated.

In 1862, Dr. Dickinson read a paper before the members of the Royal Medical and Chirurgical Society, in which 48 cases of acute rheumatism were treated by full doses of alkalies (four drachms to the ounce and a half daily of the salts of potash or soda), and in only one of these 48 cases was there any cardiac affection. These facts prove that by no other method can we expect such gratifying results as by the alkaline mode of treatment.

Of the following cases, five were articular, the remaining one a case of muscular (fibrous) rheumatism.

Case 1.—George D., Esq., aged 33, applied to me on the 7th November, 1862, suffering from acute rheumatism of the finger-joints, shoulders, and hips, arising from a severe wetting received a few days before. Has had several attacks of rheumatism before. After a purgative was administered, I gave bicarbonate of soda in a mixture, dose two drachms three times a day, cotton wadding being applied to the swollen joints.

Third day. Gave three grains of calomel last night, to be repeated every night until further notice. The heart was carefully examined, and found in a healthy condition. Fomentations of vinegar as hot as could be borne, with gutta-percha tissue external to the lint soaked in the vinegar, applied very often to the joints. Stomach a good deal out of order; tongue white; pulse 96; copious perspirations day and night, which make him extremely weak; urine reddish, with a heavy brick-dust sediment. His diet consists of tea, toast, soda-water to assuage the thirst, soup and broth; but his appetite is wretched.

Seventh day. As the pains are still severe he was ordered ten grains of Dover's powder at bed-time; he is, however, somewhat improved.

Ninth day. Up for one hour to-day. To take the calomel only every second night. Allowed a glass of sherry with water to-day.

Tenth day. Gave the bicarbonate of soda in effervescence with tartaric acid, and stopped the calomel.

Thirteenth day. Urine clearing daily; pulse 80. Soup and boiled mutton for dinner. The joints are almost well.

Sixteenth day. Urine clear; pulse 68. Stopped the tartrate of soda, and gave quinine with dilute sulphuric acid in two-grain doses twice daily.

Twentieth day. Cured. To continue the quinine for a week longer.

This patient might have been well sooner, but his cabin was much exposed to draughts, and thus he often took fresh cold.

Case 2.—E. G., aged 38, applied to me on Dec. 3rd, 1862, suffering from acute rheumatism of the fingers and neck. The urine was high-coloured, and deposited a reddish sediment; perspiration copious and highly acid. He was at once ordered bicarbonate of soda in two-drachm doses twice daily in a mixture with a few grains of nitrate of potash; flannel applied externally. On the 9th the urine was natural, the swelling of the joints had disappeared, the pain and fever had left him, and he was discharged cured.

Case 3.—On Feb. 10th, 1863, Mr. B., aged 42, applied to me with both feet affected with acute rheumatism; they were greatly swollen and intensely painful. He was ordered at once the bicarbonate of soda in two-drachm doses three times a day. French wadding to be applied to the joints, and to take three grains of calomel every second night. On the 20th he was discharged perfectly recovered.

Case 4.—Mrs. S., aged about 45, I saw on the 13th of Feb., 1863, suffering from acute rheumatism of the elbows, wrists, left ankle and foot. The same treatment was pursued as in Case 3, with the addition of iodide of potassium to the bicarbonate-of-soda mixture. This was an extremely severe attack,—great swelling of the joints, intense pain, copious perspiration, and highly acid urine; but on the 23rd of February she was discharged cured.

Case 5.—Robert W., aged 49, I saw on the 11th of July, 1864, suffering from acute rheumatism of the left knee-joint, and the fingers of the left hand. I gave bicarbonate of soda in the usual doses in effervescence, with tartaric acid, and two grains of calomel every night. Pulse 88; urine high-coloured, &c.

Third day. Somewhat better. The calomel only every second night. Fingers easier; knee much the same,—still much swollen, and extremely painful; flannel used externally.

Eighth day. Knee wrapped up in cotton wadding, with gutta-percha tissue outside. As he did not sleep well last night, to take at bedtime ten grains of Dover's powder.

Tenth day. Better. Changed the bicarbonate of soda for the bicarbonate of potash. Urine still very turbid and high-coloured, with heavy sediment.

Eleventh day. Ten grains of Dover's powder at bed-time.

Thirteenth day. Added small doses of iodide of potassium to the bicarbonate-of-potash mixture.

Twentieth day. Calomel stopped. All fever had disappeared. The swelling of the joints has been removed; but being stiffish, he was ordered some soap liniment (an ounce), with tincture of opium (four drachms), to rub the affected parts.

Twenty-fifth day. Discharged cured.

This patient was one of the seamen, and persisted in remaining on duty all the time, exposed to every sort of weather both day and night aboard ship.

Case 6.—William M., aged 29, I attended on the 8th of April, 1866, for acute rheumatism of the muscular or fibrous character. It was fugitive, flying from one place to another; the urine was reddish, and the pulse feverish. Compound camphor and soap liniments, combined with tincture of opium, were applid locally; and five grains of iodide of potassium were administered every fourth hour. On the third day he was somewhat better, but suffered a good deal of pain. The urine was still of a reddish colour. The iodide of potassium was stopped, and the bicarbonate of soda was given in two-drachm doses, three times a day; ten grains of Dover's powder at bed-time.

Fifth day. The bicarbonate of soda changed to the bicarbonate of potash (half an ounce daily); urine clearing; another dose of Dover's powder (ten grains) at night.

Eighth day. Takes the potash in effervescence with tartaric acid; pains much less; urine almost natural.

Twelfth day. Urine natural; pulse regular; pains disappeared. Discharged cured.

Duration of cases.—Case 1 lasted twenty days; Case 2, six days; Case 3, ten days; Case 4, ten days; Case 5, twenty-five days; Case 6, twelve days: making a total for the six cases of eighty-three days. Thus it will be seen that the average duration of the above cases was a trifle under fourteen days each; or, excluding the sixth case, which was not articular rheumatism, the five cases will show an average of 14⅕ days each—a great improvement, I take it, on the old-fashioned treatment of rheumatism—namely, flannel and six weeks.—*Lancet, June* 12, 1869, *p.* 812.

DISEASES OF THE NERVOUS SYSTEM.

10.—CALABAR BEAN IN TETANUS.

By Dr. William Fenwick, Glasgow.

[The patient was a man about 30 years of age. About a week previously he had suffered a compound fracture of the first phalanx of the great toe; it was dressed by a medical man at the time.]

Two days before I saw him he began to complain of stiffness of the neck and jaws, which had gradually increased, developing into one of the most violent cases of opisthotonic tetanus I ever saw. On examination, under chloroform, the injured part was found in a most unhealthy state, no attempt to retain the bones in position, the cloths surrounding the foot soaked in fœtid discharge. I thoroughly cleansed it, applied water dressing, and surrounded the foot with hot fomentations. As the bowels were constipated and tympanitic, an injection of castor oil and turpentine was administered, which acted promptly, and relieved patient considerably. He was then ordered 2 grs. of powdered Calabar bean every hour and half. The powders were obtained about 11 a.m., and regularly given during the day. On calling at 10 p.m. I found patient had had fewer attacks, and these less violent, and expressed himself as feeling better, attributing the relief distinctly to the powders. There being no symptom to contra-indicate, he was ordered to have the same doses given regularly during the night. Owing to some mischance or carelessness, however, I was much chagrined on calling about 10 a.m. next day to find that he had got no powder since 4 a.m., and been much worse in the interval. The medicine was immediately resumed in 3 gr. doses every hour and half, but the good effect previously produced was not now apparent, and after a day of violent spasm, he died about 7 p.m.

Case 2.—On 7th Oct., 1868, I saw for the first time J. R., aged 9, for whom I had two days previously prescribed, without seeing him, a little simple aperient, for what his mother called "cramp in the stomach." At the first glance it was apparent he was suffering from an acute attack of tetanus, all the symptoms being well marked; he had the risus Sardonicus, could not separate the teeth enough to show even the tip of his tongue, the abdominal muscles were flat, and as hard as a board, from tonic spasm, and the attacks of tetanic rigidity were frequent and severe, the patient screaming piteously, with the peculiar anxious, inquiring expression so often seen in the disease. On inquiry I learned that 16 days previously he had got the second toe of the left foot cut pretty severely with a broken bottle, that this, with some hazy notion of Dandie Dinmont's antiseptic treatment, had been loosely wrapped up in cloths soaked in the blood, and no attention paid to it for a week, when it was opened out, and found as might have been expected, in a very offensive state, with unhealthy suppuration. Riga balsam (tr. benzoin. co.), had then been applied, and this had been all the treatment. The toe presented a sloughy, unhealthy appearance, and was directed to have warm poultices applied. His bowels had been constipated for several days, and he had, in consequence, a full dose of calomel insinuated between his teeth, followed in a few hours by an enema of castor oil and turpentine, which moved them slightly. His mother had, four or five days previously, noticed an awkwardness in his manner of walking, which she attributed to a desire to "save" the injured foot. This was soon succeeded by the tense abdomen noticed above, and the other tetanic symptoms, till now he lay rigid, unmoving save involuntarily, any interference with the injured part bringing on an attack.

I had little hope of the case, but determined to give the Calabar bean a fair trial, and ordered him to have 2 grs. of it in powder, with $\frac{1}{3}$ gr. of powdered opium every three hours. The opium I added experimentally, to see if it would have any relaxing influence on the apparently spasmodically contracted bowels.

8th. In much the same condition. Pulse firm and regular, 96. Abdomen flat, and extremely hard and tense.

9th. Spasms scarcely so violent; no signs of the bean's peculiar action on the system, the pupils normal, if anything slightly dilated. Dose increased to 3 grs., with $\frac{1}{3}$ gr. opium as before.

11th. He has been rather easier up to this morning, when the spasms became much more frequent and severe, coincident with a refusal on his part to take any more of the powders. He was, however, induced to resume them, taken in a little ginger beer, and the opium was omitted. A dose of calomel and compound jalap powder was also given, which, however, had no effect. Wound healthy looking; to have water dressing.

He improved slightly during the next day or two, the bowels remaining constipated as before. The purgative powder was repeated, and again, though aided by an injection, without any result, except the passage of some scybalous masses. The prescription was altered on 14th to 3 grs. Calabar bean, and 3 grs. powdered rhubarb, to be given every four hours during the day. This was attended to with considerable regularity, an occasional dose being also given during the night, an average quantity of 15 grains of each being given in the 24 hours. The improvement under this treatment was more marked, and it had the further effect of completely regulating the bowels, a motion of natural consistence being had daily. The urine all along had continued to be excreted in fair quantity. On 18th the wound was completely healed, and he was for about 12 hours without a spasm; but the abdominal rigidity had not abated any; the trismus was slightly better, he could separate the teeth about $\frac{3}{8}$ of an inch. A very severe spasm was brought on in the evening by his father speaking to, and waking him out of a sleep, and he had four or five very violent ones during the night. The powders, which with the gradual improvement had been given less regularly, were on the morning of the 19th ordered to be given every 3 hours, till their moderating effects were induced. In the afternoon I was called to see him, owing to a severe pain he complained of in the upper part of the *right* thigh, apparently radiating along the course of the anterior crural nerve, and paroxysmal in character There was no induration or swelling perceptible, either over the part or over the cœcum, but firm pressure about the femoral ring brought on the spasms, which were also induced by each paroxysm of pain. I ordered an aconite and chloroform liniment to be applied to the part, which soon gave relief.

Up to this time patient's diet had been almost nil, only a little milk and beef-tea being coaxed down at rare intervals; he was now directed to get, in addition, a table-spoonful of wine, or a dessert spoonful of whisky, in his option, thrice a day.

Pulse all along has kept firm and equable, varying very little from 90 to 96 beats a minute; pupils quite natural. Sleep during the first ten days had been fairly got, considering the severity of the symptoms. He slept five or six hours on an average during the night, and had occasional snatches during the day.

On 22nd, the spasms having much abated in frequency and intensity, the powders were ordered to be given only thrice in the 24 hours. He got one in morning, and no more till evening, A much worse night was the result, five or six very severe attacks occurring before I saw him next forenoon, when they were directed to be given every four hours. As formerly, their resumption was attended with good effect. On morning of 24th the interval was increased to six hours. On morning of 25th he was so far recovered as to bear being lifted to another bed, the change being, however, followed by an extremely violent attack. This was the first change of position he had had for three weeks, having lain on his back all the time, yet the skin was neither chafed nor reddened. He could now be propped on his side for a short time occasionally. He now also commenced to take a little milk diet with relish, and the stimulant ordered on 19th had been taken to very kindly; in fact, he had almost an insatiable craving for whisky, the form he preferred, and we had great difficulty in keeping him within something like reasonable bounds. He frequently took a gill in the 24 hours, and I must add, seemed all the better for it. Possibly its action in lessening muscular waste was the instinctive cause of the craving.

Soon after being removed he quieted nicely; and having been for 36 hours without an attack (getting the powders four times a day), I thought I might try the effect of stopping the remedy. This was done on morning of 28th. He had been about twelve hours without his dose of the bean when the spasms recommenced, now being chiefly felt in the back, less noticeably in the lower jaw. I at once resumed the powders; their effects were as promptly seen as ever. He continued to take them thrice a day for two days, then twice a day, and on 3rd November they were finally stopped. He was now eating voraciously, the abdomen was softer, though much flattened, and the desire for spirits nearly vanished.

On 6th November I got him up, and tried if he could stand, but he was quite unable to do so. He seemed in nearly the same state as that noticed by Dr. Alexander in the November number of the *Journal* (page 46). On being supported by the shoulders he could move his legs freely enough, but could not rest his foot on the ground, merely touching it with the tips of his toes, and even considerable force could not bring the heel down. His stimulant was stopped; he was directed to have brisk friction applied to the legs two or three times a day, and to be encouraged to try to walk, if necessary with support. Three days afterwards he could walk a little, but with an uncertain vacillating gait, as if the muscular sense was deficient; he did not seem to know the force required for movement. There was also a trace of the tendency to fall backwards which he formerly exhibited.

Four days afterwards, on calling, I found he was in a neighbour's house, and so far as tetanus was concerned, quite well.

I consider this a very interesting case, from the marked way in which the stoppage of the bean allowed the disease to re-manifest itself. Thrice it was stopped with the same result, increase or resumption of spasms; thrice it was resumed with the same result, their cessation. Should I have another case to treat, I would prefer giving at once the powdered Calabar bean and rhubarb, which combination acted so well with my second patient. Under its influence, though carefully on the look-out for them, I saw none of the depressing effects which the bean by itself produces.

Patient took altogether about 300 grs. of the powdered bean. —*Glasgow Medical Journal, May* 1869, *p.* 300.

11.—ON THE TREATMENT OF TRAUMATIC TETANUS WITH CALABAR BEAN.

By Dr. Eben Watson, Professor of Physiology in Anderson's University; and Surgeon to the Royal Infirmary, Glasgow.

[After relating two cases of tetanus treated by Calabar bean, the writer continues :]

I may add that there is, so far as I can ascertain, no regular supply of these beans as yet established, and it is very possible that several kinds of them are at present mixed together by druggists in order to have enough for the preparation of extracts and tinctures to supply the demand of the market. I can prove that some of the extracts at present sold are different from others. Thus some are entirely soluble in spirit, and others are not; and, what is much more important, some are exceedingly weak in their physiological effects compared with the early and more carefully prepared specimens. This I have proved by experiments on rabbits and others of the lower animals, and I am quite persuaded that the same thing has been sadly shown in my recent experience of the treatment of tetanus in the human subject. For I was in this state of uncertainty and suspicion as to the genuineness of the drug and the strength of its preparations when I was called on in rapid succession to treat the following cases. It will, however, be observed that in them I employed the drug more freely,—using subcutaneous injections whenever there was any difficulty of swallowing, and sometimes employing the crude powder of the bean when it could be swallowed by the patient.

Case 3.—W. S., aged 14, was admitted into the Royal Infirmary on the 16th January, 1869.

On Thursday the 7th instant, patient, while assisting in a slaughter-house. was wounded in the left leg by the horn of an ox. The wound was dressed and the boy remained well till two days before admission, when he complained of stiffness of the jaw. Dr. Dunlop saw him, and recommended him to my care in the infirmary.

January 16. When admitted he had all the symptoms of tetanus, his teeth quite firmly clenched, his chest, belly, and back very rigid, but the limbs free. Pupils rather dilated; pulse 110; bowels confined. He had a drop of croton oil in castor oil, and began the Calabar bean at 8 p.m., taking gr. j. of extract every half-hour for three times, and then gr. j. every hour for the next twelve. At 4 a.m. he had a violent fit of general spasms producing opisthotonos.

January 17. At 10 a.m. his expression was improved, and his muscles were considerably more relaxed than they had been; pulse 88. Patient had vomited a good deal of frothy mucus.

He had taken no food except a little milk occasionally. The Calabar bean was continued, and as the bowels had not moved another drop of croton oil was given. At 10 p.m. he was still better, being even more relaxed in his muscles, and the bowels had been freely moved. Has not slept much, and has vomited frequently. Pulse 108, full and soft; gr. j of extract to be given every two hours, and stimulants to be freely given during night. Tincture of cannabis indica to be given with the bean in ♏xxx doses every four hours, unless patient slept. At 11 p.m. patient was found much relaxed and asleep; mouth could be opened about an inch, but shortly after this time he had a severe fit of general spasms and became very weak. As he could not swallow, brandy in beef-tea was injected into the rectum, and repeated as the patient could bear it, and in one of the injections gr. iij of the extract was administered. Nothwithstanding this, at 3 a.m. he had a most violent spasm, and the teeth remained firmly clenched. He swallowed gr. j of the extract in a little whisky and water, but in a quarter of an hour he had another violent fit of spasms, and the muscles of the neck and back remained quite hard. Patient could not swallow, but gr. ij of extract were administered by injection. In about half an hour the mouth could be opened more than an inch, and the muscles generally were quite soft.

January 18. The above-mentioned relaxation continued with only a few twitches; no bean had been given, but stimulants and food as they could be taken; bowels had been twice moved. At 1 p.m. slight occasional spasms occurred, and therefore gr. j of the extract was given *per anum*, and at 2 p.m. patient drank about half a pint of beef-tea, and continued relaxed. At 4.30 p.m. a very violent spasm occurred, and chloroform was tried ineffectually, and, as breathing was long delayed, artificial respiration was attempted with success. Patient remained afterwards more relaxed, though still in parts rigid. At 6 p.m. tincture of cannabis indica and spirit of sal-volatile (♏xx of each) were given in water, and in an hour and a half afterwards gr. j of the extract by the mouth. This was followed by relaxation of the rigid muscles, which continued and was kept up by injections of gr. j of the extract of beef-tea into the rectum until 9 p.m., when during the administration of some brandy and water he seemed to choke and gasp. He then fell into a general fit of spasms, which was never wholly recovered from till he died at 2 a.m.

Although this was from the first a very acute and severe case, yet the influence of the bean was quite marked, and the progress of the case was favourable until a few hours before death. It seems very likely that the brandy and water had irritated the glottis, and thus caused the spasms, which in the state of weakness produced partly by the disease, and no doubt partly by the drug, he was unable to bear. The case teaches two lessons: one, the importance of very skilful and careful nursing in this disease; the other its deceitfulness, and the great uncertainty of the patient's prospects, even when these seem most promising. This is especially true until the disease has passed its acute stage.

Case 4.—R. S., aged 12, was admitted to the Royal Infirmary on the 2nd of April 1869, with a burn from molten iron on the hips, thighs, and feet.

On the 14th symptoms of tetanus showed themselves, and therefore, the bowels being loose at the time, the tincture of the bean was immediately commenced. He had ♏xxx every hour during the day, and three times he had as much of the solution of muriate of morphia along with it.

April 15th. He was rather better this morning, and the same treatment was continued; soup and whisky and water were given when he could take them.

April 16. Complained of pain in back and neck, and the muscles were hard there. The same treatment was continued, and about midnight he was asleep and relaxed all over. The doses of the bean were only given every three hours to allow patient to sleep.

April 17. Seems more relaxed, but has twitching spasms in diaphragm, and is weaker. About 10 p.m. he was found in a state of prostration, with great sweating, and pupils contracted. He was quite insensible, and breathing was difficult; still the spasms could be excited. Stimulants were given and the bean delayed.

April 18. Patient quite recovered from his state of prostration. He seems much relaxed generally, but slight spasms still occasionally recur. The tincture of the bean and of cannabis indica were given every three hours, but at night the solution of muriate of morphia was repeated at patient's own request.

April 19. Patient in nearly the same state; perhaps a little weaker. The bean and morphia were continued.

April 20. Patient is decidedly weaker to-day, but not worse otherwise; nevertheless in the afternoon he had several severe convulsions without any assignable cause. The bean did not seem to act in time to check them, and the stimulants did not prevent his sinking. He died at two o'clock on the 21st.

I was much disappointed with the result of this case. It seemed to be progressing favourably till the very last day, when it suddenly became worse, and ended fatally. The only way to account for this result is, that the original cause of the disease was a severe burn, and that during its progress a new irritation or excitement of the tetanus may have been caused.

Case 5.—W. M'A., aged 25, was admitted on the 25th June, 1869. A week ago he had his little finger and part of hand crushed, so that the finger had to be amputated. Symptoms of tetanus commenced the day before admission, and have progressed very rapidly since, and swallowing is attended with great pain and difficulty. Pulse 112. Bowels have been regular since injury.

A dose of croton oil in castor oil was first given, and then gr. xij of the powder of the bean with ♏xx of tincture of cannabis indica. The bean was repeated every hour, and the Indian hemp every second hour during the night.

June 26. The patient has been much relieved, and can swallow better. His muscles are considerably relaxed, but during the night he had several opisthotonic spasms. He was, however, brought thoroughly under the influence of the bean, and became so sick as to vomit frequently. The severity of the convulsions then diminished, and he drank milk freely, but the twitches were very frequent. They occurred once in every two or three minutes, even when kept quite quiet. The swallowing likewise became less perfect, so that nourishment had to be given by injection into the rectum.

June 27. This morning the patient was thoroughly under the influence of the bean, and his mouth could be easily opened, and the spasms were both slight and infrequent. But in the forenoon he did not get the bean so regularly, owing to his sickness, and consequently the fits became stronger and more frequent. In the evening subcutaneous injection of the tincture was resorted to, and the spasms rapidly diminished again as the influence of the bean gained the ascendency. But from some cause or other he had a very severe fit of spasms about midnight, and it both frightened and pained the patient greatly, so that he cried out.

June 28. He complained of pain in his back, but was well under the bean, and greatly relaxed. His spasms were so slight that the medicine was given at longer intervals to-day. During its course, however, he became very unruly, and talked incoherently and wildly about self-destruction. He often tried to strangle himself with his own hands, and when prevented he voluntarily bit his tongue that he might bleed to death. Strange to say, all this time he had no fit of convulsions; but on the 29th, at 5 a.m. when a dose of the bean was being given, he resisting furiously, a violent paroxysm occurred—his chest was completely fixed, and in spite of the efforts made to accomplish artificial respiration, he died in the fit.

In this case, which was carefully watched and treated by my present house-surgeon, Mr. Aikman, I combined anodynes with the bean, and I believe the treatment would have been successful had it not been for the strange suicidal efforts of the patient. These, of course, both weakened him and excited the fits. In his, as in other cases wherever the swallowing was difficult, I had recourse to subcutaneous injections of the tincture of the bean ;—not that I fancy there is any less absorptive power in the lining of the stomach in tetanus than in any other disease, but simply to avoid the muscular exertion of the act itself.

Case 6.—J. Q., aged 12, was admitted to the Royal Infirmary on the 23rd July, 1869, with symptoms of tetanus of five days' duration, following a lacerated wound of left hand.

After the bowels had been opened by croton oil, patient was rapidly put under the influence of the Calabar bean. The tincture was at first used along with stimulants, and as soon as the bean took effect all tetanic symptoms disappeared, and the boy slept quietly. But on the morning of the 24th, a new specimen of tincture having been used for some hours, the symptoms reappeared with considerable violence. The powder of the bean was then substituted for the tincture, and used in doses of 10 grains every hour. The result was that during the rest of this day, and also during the 25th, he had almost continuous rest, although occasionally a slight arching of the back might be noticed. This occurred most distinctly about the times when the doses were due.

July 26. About 1 p.m. to-day, the doses having been continued night and day as formerly, deep depression and sickness exhibited themselves. Therefore, lest the powdered bean should have accumulated in the stomach, a purgative dose of rhubarb was administered, and the bean was not given for some hours ; but whenever slight spasms began to show themselves the drug was resumed at intervals of two hours.

July 27. Since yesterday he has had no opisthotonos, and only twitches occasionally, but these increase if the bean is not given regularly every two hours. It was noted in this case that the pupils, contrary to all my former experience of this drug, became contracted and remained contracted during the whole period of the action of the bean on the system ; so that the repetition of the doses was mainly regulated by the state of the pupil. If this were a constant or even a common phenomenon, it would be an extremely useful guide in giving the bean, but that effect on the pupil is not often seen unless the bean is applied to the eye itself.

July 28. The benefit derived from the bean was by this time so apparent to the boy himself that he frequently called for it.

July 29-31. During these days he remained in much the same state, but taking his food much better and with considerable relish.

August 1. Twice to-day he had a peculiar tremulousness of his hands, but this disappeared on the administration of stimulants. On the 2nd and 3rd various attempts were made to lengthen the intervals of administering the bean, but the stiffness and arching of the back always made it necessary to recur to the drug at the end of the two hours. He continued to masticate his food well and easily.

August 9. Has been sitting up in bed to take his meals, and is altogether better.

August 19. Has had no bean since the morning of the 10th, and continues quite well. He has no spasms, and is running about the ward freely. He will be dismissed cured in a few days.

I cannot conclude the record of this case without stating that I believe its successful result is in a great measure due to the way in which the patient was watched in the early stage of his disease by my house-surgeon and dressers, who took the duty by turns both night and day.

I have thought it right to put these cases in some detail before the profession that they might be judged of independently, and thus assist in settling the question as to the value of the Calabar bean in traumatic tetanus. I fear that this disease is looked on by most surgeons as so utterly hopeless that cases of recovery from it come upon them as agreeable surprises, and they are for that reason led to publish them. But this renders it difficult, or perhaps impossible, to learn anything from the statistics of the subject. There are, however, some interesting data of a statistical kind in our possession regarding tetanus. Thus the late Professor Laurie, 1853, collected from the journals of the Royal Infirmary 50 cases of traumatic tetanus. They were treated in many different ways, and the results were 44 deaths and only 6 recoveries. Of cases previously published he tabulated 171, in which there were 80 deaths and 91 recoveries; but the contrast here makes it obvious that if all the cases from the practices of the surgeons to whom these cases occurred had been published, the result would have been very different.

Dr. Busch tells us that of 21 cases he had 7 recoveries, *i.e.* 33½ per cent., and that Demme had 7 per cent. of recoveries, Blanc 43 per cent., and the surgeons in the American war 7·4 per cent. Still further it is interesting to know that Busch treated 12 cases and Demme 21 with curari, *i.e.* 33 cases with 14 recoveries and 19 deaths.

Again, I have treated 10 cases with the Calabar bean, and had 6 deaths and 4 recoveries. In this summary I omit one other case seen by me just when the patient was dying, and who therefore was not treated at all.—*Practitioner, September*, 1869, *p.* 150.

12.—ON A CASE OF EMPROSTHOTONOS, RESULTING APPARENTLY FROM COLD, SUCCESSFULLY TREATED BY THE SUBCUTANEOUS INJECTION OF THE SOLUTION OF THE EXTRACT OF THE CALABAR BEAN.

By Dr. Bernard Duffy, Florence.

[The patient whose case forms the subject of the following article was 35 to 40 years of age. Whilst suffering from a cold caught in England three weeks before, he had been exposed, when insufficiently clothed, to the cold wind coming from the Appenines when still covered with snow, in April. Spasmodic pain at the lower part of the sternum, followed by complete rigidity of the intercostal muscles, were the first symptoms of his approaching illness.]

I saw him at about half-past eight on the morning of the 20th. He was sitting on the side of his bed, his head and chest so rigidly bent forwards as to prevent his assuming the erect position, his countenance indicative of extreme distress and anxiety, and the respiration short, frequent, and what the French call *saccadé*. On percussing the chest, a tolerably clear sound was emitted, but auscultation showed that little or no air entered the smaller air-cells of the lungs. The heart's action was hurried, but regular, and free from signs indicating organic lesion. Pulse from 90 to 96. On applying the hand to the chest, the intercostal muscles were found permanently contracted into *hard* lumps, also the recti abdominis, thereby greatly increasing the emprosthotonos, the tendinous intersections being quite evident, while the external oblique was as flat and as hard as a deal board; what respiration there was seemed to be carried on exclusively by the diaphragm. A warm bath was ordered, and while it was being got ready mustard sinapisms were applied to the insteps, a draught of camphor julep with mindererus spirit and chlorodyne was given, and a camphor liniment with chloroform and atropia rubbed into the chest.

These remedial measures, including the bath, affording but trifling and temporary relief, and the patient beginning to complain of stiffness about the neck with some difficulty in swallowing, though the frontal facial and masseter muscles were yet free, I resolved to lose no further time; and believing that I had to deal with a case of tetanus produced by cold affecting the afferent nerves, and giving rise to exaggeration of the reflex motor function of the spinal centre, I injected, about noon, under the skin of the neck on the right side, one-third of a grain of the extract of Calabar bean dissolved in eighteen minims of water, as recommended by Mr. Thomas R. Fraser, Assistant Professor of Materia Medica at the University of Edinburgh; the solution being previously neutralised with a solution of the carbonate of soda. This injection was repeated every three hours on that day; and nausea, but no other apparent result, supervening after the fourth dose, the injections were suspended for the night, and until the following morning at nine o'clock, from which time they were used steadily every second hour. Nausea, faintness, and perspiration coming on after the fourth dose, they were discontinued; an evident impression having been made by this time on the muscles engaged. After this the tetanic symptoms gradually yielded, so that on the night of the sixth day the patient was enabled, for the first time since the attack, to resume the recumbent position without an aggravation of the spasms.

Purgatives and enemata were administered without effect until the 21st, when the bowels acted freely, with great relief to the patient. On the 22nd two blisters, each about ten inches long and over an inch wide, were raised, by means of Messrs. Bullen and Burt's blistering fluid, on either side of the dorsal spinous processes.

On the 21st, about midday, the exhaustion was alarming, and then the patient was seen, in consultation with me, by Signor Burci, the late able Professor of Clinical Surgery at the hospital of Santa Maria Nuova, in this city; and, owing to the rarity of the case, and as a further example of the beneficial result of the use of Calabar bean, he suggested that it should be recorded.—*Lancet, July* 3, 1869, *p.* 7.

13.—TREATMENT OF TETANUS BY ACONITE.

Having lately heard the report of a case of tetanus successfully treated by nicotine, administered in small doses by Mr. Morgan, in a traumatic case under his care at Mercer's Hospital, and Dr. Babington, of Londonderry, having reported another in which nicotine was given in larger doses but owing to its depressing effect had to be given up, and the patient finally did well, it is interesting to find that another powerful agent, the tinct. of aconite has been used also with success, by Prof. Winderlich. As reported in L'Union Medicale, he gives the following:—

Case 1.—A boy, aged fourteen, attacked with traumatic tetanus with opisthotonos, profuse sweat, and miliary eruption; many of the general muscles, particularly of the face affected; severe and frequent convulsions; temperature, nearly natural; and pulse steady. Morphia in full dose was given, and warm baths used. There was but a temporary improvement under this treatment. Ten drops of the tincture of aconite were given four times a day, equal to two grains of aconite. The symptoms improved, the pulse fell below the natural standard, and the temperature normal ; recovery soon followed.

Case 2.—A man, delicate and with diseased lungs, suffered from spontaneous tetanus, trismus and opisthotonos, spasmodic contraction of other general muscles ; convulsions and abundant miliary eruption and sweat ; temperature tensely febrile ; pulse a little increased ; an intercurrent phenomena did not increase the convulsions, but raised the temperature a little, from 38°5 to 38°6 (centig), the temperature soon fell to 37°7 (centig). Morphine was administered by the mouth, and by injections. Chloroform was rubbed over the affected limbs, this produced a temporary alleviation. Five drops of tinct. aconite given three times a day, however, rapidly changed the condition of the patient, who recovered ; the temperature being 36°8 to 37°3 (centig).

Professor Winderlich draws attention to the temperature condition, and the facts that during the period of miliary eruption and sweat the heat was not specially raised, and that the tetanic contractions and spasmodic action of the muscles do not cause the elevation of the temperature which is so remarkable preceding death by tetanus ; as in animals where tetanus is artificially produced. Elevation of temperature is not caused by the violent contractions and muscular action. He is fain to attribute their elevation to the remedies employed in the human subject, for the cure of the disease. In the second case, the heat was normal till pneumonia supervened, and it may be concluded that when the temperature rises some complication has occurred, and that the temperature will form a criterion of the probable issue of the case, if it remains natural or lower than natural it presents the best augury for success.

In three cases of fatal tetanus observed, the temperature never fell to its natural condition.

We recommend these observations for further inquiry. No doubt the two cases referred to by Professor Winderlich were not of the violent and acute character we meet with in our hospitals and occasionally in private practice.

Mr. Morgan's case read before the Surgical Society here rather bears out the temperature observations of Professor Winderlich, as in his patient there was hardly any increase of temperature, though no miliary eruption or sweat had appeared, and what is also interesting, that though a traumatic case, it is not of an intensely acute character, perhaps attributable to early treatment.—*Medical Press and Circular, June* 2, 1869, *p.* 461.

14.—CALABAR BEAN IN TETANUS.

In the Glasgow Med. Jour. for May, 1869, Dr. W. Fenwick reports the use of Calabar bean in two cases of acute traumatic tetanus. The first case terminated fatally, but the remedy was not given until the disease was far advanced, and by some mistake, was omitted during one night, though manifest good effects had been produced by it. In the second case, a child aged nine, was ordered two grs. of the powdered bean with ⅓ gr. opium every three hours, the symptoms of tetanus having been developed for some days previously. The opium was soon omitted, and 3 grs. of Calabar bean with 3 grs. of rhubarb given every four hours during the day. The improvement following the use of the bean was most marked; thrice it was stopped, with the same result, increase or resumption of spasms; three times it was resumed with the same result, viz.:—cessation of the spasms. The patient altogether took about 300 grs. of the powdered bean, and recovered perfectly.

Dr. Greenleaf (Richmond and Louisville Med. Jour., May 1869), adds seven cases, collected from various sources, some under his own care, to the twelve already reported by Dr. Fraser, of Edinburgh, illustrating the value of physostigma in the treatment of tetanus. (See Edin. Med. Jour., May 1869.) Three recovered and four died, so that with Dr. Fraser's cases, we have a total of nineteen cases of tetanus treated with Calabar bean, twelve of which recovered and seven died. Of the seven additional cases, however, related by Dr. Greenleaf, in one case the post mortem examination revealed the presence of a hair-pin imbedded in a wound in the scalp, a persistent source of irritation. If this be excluded, as well as a case of Dr. Watson's in which only one dose of the bean was given, we have a result of *seventeen cases* treated with only *five deaths*, a degree of success that has not been shown to follow the employment of any other remedy. Dr. Greenleaf considers the alcoholic extract of the bean to be the best preparation for use, either by the mouth or hypodermically, giving in the former case from ¾ gr. to one gr. every two hours, in the latter ¼ gr. to ⅓ gr. increased as the effect passes off, or as the urgency of the symptoms demands.—*Dublin Quarterly Journal, Aug.* 1869, *p.* 205.

[Our readers may, if interested in this subject, refer back to articles in vols. lviii, pp. 59 and 66, and lvi, p. 48.—Eds.]

15.—PHYSIOLOGICAL AND THERAPEUTICAL EFFECTS OF THE CALABAR BEAN, EMPLOYED IN HYPODERMIC INJECTIONS.

The following note is by M. Bourneville, house-surgeon to the Paris hospitals:—

During the last few years the Calabar bean has been studied with care and employed in several diseases. I have personally instituted some experiments in order to verify certain phenomena and divers therapeutical essays. Among the results which which I have obtained I may just mention the following. Everyone knows that the Calabar bean, when instilled into the eye, produces a very remarkable contraction of the pupil. Now I have been surprised to observe that, when it is injected under the skin, there ensues, on the contrary, a dilatation of the pupil, or else the ocular diaphragm remains unchanged. In nine cats and one dog the dilatation was well marked and constant. Furthermore, in two cats I observed an unequal dilatation of the pupils. In four frogs the pupils remained unchanged, or seemed slightly dilated. It is not only in animals that this peculiarity, already noticed by Fraser, is to be observed, but also in the human species.

A second point which seems interesting to notice is the antagonism between the Calabar bean and atropine. I have verified this phenomenon in six guinea-pigs. After having injected the bean, atropine was injected. The animal did not succumb when both medicaments were injected in fit proportion; but two or three days afterwards, a dose of the bean equal to that which had been at first employed being injected into the surviving animals, they all died. This obviously shows the antagonistic action of atropine against the Calabar bean.

From a therapeutical point of view, I have prescribed the Calabar bean, taken through the mouth, to epileptic patients in 1866, and by the hypodermic method to (1) a woman of 65 years, having paraplegia with spasmodic contraction; and (2) to a young girl of 18, affected with chorea. In the first case, in which the paraplegia was most probably due to a tumour seated in the spine, and was attended by marked contraction on the left side, I injected, from Dec. 4th to 30th, 1868, from four to thirty milligrammes of the extract of Calabar bean. Notwithstanding the gradually increasing strength of dose, there did not result the slightest amendment. Moreover, the pupils never showed any contraction, but remained after the injections as they were before.

With regard to the choreic patient, who was then in her third attack, I injected every other day during three months (from February to April 1869) from six to eight milligrammes of the extract of the Calabar bean. The symptoms gradually abated without disappearing entirely. Contrary to what has been noticed by Ogle and others, there was no speedy cure in this case. Again, in this case as well as in the former, and in my experiments on animals, either the pupils remained unchanged, or became slightly dilated. If the dose was not increased, it was because the weak dose which I employed had already produced some bad symptoms: restlessness, pallor of the countenance, clammy sweats, lipothymy, slow and small pulse, and, occasionally, bilious vomiting. These facts, besides confirming certain views which have been since then advanced, show that the administration of the Calabar bean by the hypodermic method is possible even now, as has been shown, moreover, by Eben. Watson. The doses above mentioned may, therefore serve as a guide.—*Lancet, Aug.* 14, 1869, *p.* 233.

16.—TREATMENT OF EPILEPSY.

Dr. Brown-Sequard states that his usual prescription for epilepsy is as follows :—

Iodide of potassium, one drachm.
Bromide of potassium, one ounce.
Bromide of ammonium, two drachms and a-half.
Bicarbonate of potash, two scruples.
Infusion of calumba, six fluid ounces. Mix.

A tea-spoonful of the mixture to be taken before each of the three meals, and three tea-spoonfuls at bed time, with a little water.

In syphilitic cases he increases the amount of iodide of potassium. In administering the bromides it is necessary to give a relatively larger dose at bed-time, and smaller doses in the day if sleepiness is caused. The medicine should be pushed till anesthesia of the fauces is produced, and an acne-like eruption appears on the face, neck, and shoulders, &c. The bromides should be continued for fifteen or sixteen months after the attacks have ceased. An occasional purgative ought to be given, and if any debility be produced by the use of the bromides, wine and nourishing food should be used, with cod-liver oil, arsenic, strychnia, &c.; and the cold douche or shower bath employed.—*Diagnosis and Treatment of Functional Nervous Affections*, 1868.—*Dublin Quarterly Journal, May*, 1869, *p.* 417.

17.—CASE OF EPILEPSY SUCCESSFULLY TREATED WITH ASSAFŒTIDA.

Under the care of Dr. Pollock, at Charing Cross Hospital.

The following case is interesting not less as an example of failure of the bromide of potassium to influence the recurrence of fits described as epileptic in character, than from the successful results attending the use of assafœtida.

C. Y., an unmarried woman, 29 years of age, applied at the hospital in November, 1868, suffering from epileptic fits. She said she had been liable to them since she was nineteen years of age, and that they had been gradually increasing in severity and frequency, usually attacking her once or twice in a fortnight. She loses all consciousness, falls down, struggles violently, bites her tongue and lips, exhibiting, in fact, all the usual phenomena of an epileptic fit, ending with a deep sleep, from which she awakes much exhausted. The attacks come on quite unexpectedly. She has a sallow complexion, and the distressed and anxious look so common in epileptics. Her general health is pretty good, and she menstruates regularly. The case was first treated with bromide of potassium, gradually increasing the dose from fifteen to forty grains three times a day, but without the slightest benefit. Sulphate of zinc, quinine, and tincture of iron were all tried in full doses, but no good result followed. In April last half a drachm of tincture of assafœtida with three grains of carbonate of ammonia was given three times a day, and with a most satisfactory effect. Since the first week that the remedy was tried she has had no return of the fits, though she suffers at times from headache and a feeling as if a fit were coming on. She has her medicine renewed occasionally, and is still under observation.

Dr. Pollock remarks, that if the fits had not been so clearly epileptic (she had one on one occasion while being seen at the hospital), it might be supposed that the case was one of hysteria; but there can be no doubt as to the nature of the disorder, though it is accompanied by some symptoms of a nervous character, which first led to the employment of the assafœtida.

The hint afforded by this case has been taken advantage of, and other cases of epilepsy have been treated with the same drug, but at present without any decided results. It may be worth while, Dr. Pollock suggests, to adopt this mode of treatment in cases where other medicines have been given without affording any relief.—*Lancet, August* 21, 1869, *p.* 267.

18.—ON THE USE OF STRYCHNIA IN CERTAIN FORMS OF EPILEPSY.

By Walter Tyrrell, Esq., Great Malvern.

In a disease like epilepsy, of which the pathology is very obscure, it is satifactory when we can say that we have established any definite fact, more especially when that fact is one bearing upon treatment. Now that bromide of potassium has a decided effect in relieving certain forms of epilepsy is one such fact; and I wish to point out in this note what I think will be established, on trial, as another fact equally worthy of notice; viz., that other varieties of epilepsy may be cured by strychnia.

I do not mean to say that I can point to this or that case, and say it will be cured by strychnia; in our present state of knowledge we are unable to do this with any remedy; but I think I can point to a large class of cases in which the administration of strychnia will be followed in the majority of cases by the most beneficial results. There is a common form of epilepsy in which anæmia and defective nervous control are prominent symptoms. The majority of these patients are women, and with them the disease is apt to commence at or about the time of the first menstruation; and the attacks show a disposition to occur more frequently and with more severity near the catamenial epoch. In the intervals of menstruation, the disease often shows itself irregularly in the form of *petit mal.* In such cases, and in children in whom epilepsy, often commencing with some of the varieties of *petit mal*, gradually passes into the more severe form, this plan of treatment by strychnia is very successful; and there are few cases which are not benefitted by a perseverance in its use.

My experience would lead me to believe that large doses are unnecessary; for, although I have carried the dose as high as one-third of a grain twice daily, with benefit, I am now in favour of employing smaller amounts given more frequently. I have been using this remedy now for nearly ten years, and I can certainly show some valuable results. I am now preparing to tabulate the whole of my cases for publication in a collected form.—*British Med. Journal, Aug.* 7, 1869, *p.* 145.

19.—CHOREA: AT FIRST UNILATERAL (LEFT), THEN GENERAL AND SEVERE: GOOD EFFECTS OF STRYCHNIA.

Case under the care of Dr. Murchison, at the Middlesex Hospital.

We are indebted to Mr. H. A. Bale, Resident-Physician's Assistant, for the following notice.

E. B., aged 15, was admitted into the hospital on March 23rd. Her illness began with slight twitchings of the fingers of the left hand a month before admission; these spread to the arm, left side of the body, and face; the right limbs were now slightly affected, but the patient could walk and talk, and slept well; the heart-sounds were normal. She never had rheumatic fever. When admitted, the patient was put on ten grains of bromide of potassium three times a day; this was increased to thirty grains three times a day; but in spite of this, the right side rapidly became as bad as the left. Belladonna and cannabis Indica were successively tried, but without improvement.

On April 7th, the patient was noticed to be unable to sleep, owing to the violence of movements; pulse 108; temperature 101; skin hot and dry; the pupils dilated; the patient was stupid and heavy; her appetite was bad. Sulphate of zinc was then tried (two grains three times a day), but the patient became worse.

On April 10th, the patient was becoming much exhausted; she was unable to talk, and could only be fed with great difficulty, owing to the violence of the convulsions; she had also great difficulty in swallowing. The back of the body and limbs were sore and much chafed from the constant movement. She had great thirst. She had passed urine in bed for the last two days. She was now ordered six minims of liquor strychniæ in water, to be taken every four hours, and two drachms of brandy every two hours. The improvement was immediately apparent after two or three doses. The pupils became natural; the paroxysms less frequent, shorter, and less violent.

On the 15th, trismus was noted to have quite disappeared. She was taking nourishment freely, and the amount of liquor strychniæ had been increased to thirty-six minims in the twenty-four hours.

On the 18th, there were very slight choreic movements in the limbs and face. She was ordered ten minims of liquor strychniæ every eight hours.

On the 20th, the improvement continued, and the mixture was now ordered every six hours. The amount of strychnia was gradually increased from this time, until on May 12th she was ordered to take ten minims every four hours; the movements at the same time steadily, and at last completely, disappeared. The left arm was left almost paralysed, but rapidly recovered. The mixture was omitted on May 28th; and on June 7th the patient was discharged cured.—*British Med. Journal, Aug.* 21, 1869, *p.* 211.

20.—REPORT ON THE TREATMENT OF DELIRIUM TREMENS IN SOME OF THE HOSPITALS OF GREAT BRITAIN.

It is interesting to note in the following report, which gives a fair idea of the state of opinion in the profession on the subject, the great change which has taken place within the last few years in the treatment of delirium tremens. Instead of the heroic doses of opium, which were almost as a matter of course given in cases of this disease, opium is now used only by some physicians, and by them in comparatively small doses: the excessive treatment by alcohol has given way to more moderate measures, and now it is given up altogether, or stimulants are administered in much smaller quantities, while judicious nursing, except on rare occasions, has taken the place of the strait jacket. It is satisfactory to find that all are agreed as to the great importance of abundant nourishment of the best kind, and perfect rest.

Charing Cross Hospital.—Dr. Salter's treatment is sedative, pushed to extremity, aided by stimulants, and, above all things, feeding. The results which he has obtained have been uniformly such as, in his opinion, leave nothing to be desired.

Middlesex Hospital.—Dr. Goodfellow is not inclined, during the early part of the disease, to interfere greatly. His treatment is mainly expectant and dietetic, abundance of nourishing food being allowed. Should the urgent symptoms, however, continue, subcutaneous injections of morphia, from a fourth of a grain upwards, according to circumstances, are given ; and stimulants, spirits, or beer, as the case may be. The following mixture Dr. Goodfellow has found frequently of great service.

℞. Quinæ disulphatis gr. ij ; chloroformi ♏xx ; tincturæ cardamomi comp. ʒj. To be taken in water every four or six hours.

If there be much febrile disturbance, a grain of opium with a grain of calomel is prescribed.

Dr. Murchison advocates no special rule, his mode of treatment depending upon the individual character of the case. Generally speaking, however, he employs opium if there be no real affection, but if this be present, he believes tincture of digitalis, in twenty or thirty minim doses, offers considerable advantages. He thinks stimulants in some cases useful, but he by no means employs them in all cases. Nourishing food and quiet are, however, invariably necessary.

St. Bartholomew's Hospital.—Dr. Farre always takes care to get the bowels open at first. He then gives opium ; or, if the pupils have any disposition to contract, opium and antimony several times a day. If sleep be not induced by this means, he uses cold affusion to the head. Wine or beer is allowed, if the pulse be low, or the skin perspiring. He has given half-ounce doses of digitalis in several cases without injury, but without marked effect.

St. Thomas's Hospital.—Dr. Peacock has been lately employing bromide of ammonium in delirium tremens with very good results.

Westminster Hospital.—The plan of treatment which, as a rule, Dr. Fincham adopts, is as follows. He cuts off at once all alcoholic stimulants, and administers directly abundance of easily digested and nourishing food—*e.g.*, three pints of strong beef-tea, and one of arrowroot and milk, given in divided quantities every two hours, as in a case of fever. If, by giving one or two pints of porter in the day, he can get food taken more readily, Dr. Fincham allows that quantity. As soon as possible, he urges the patient to take solid food, in the shape of meat, given as regular meals, with porter; continuing, at the same time, beef-tea, &c., in less quantity. Dr. Fincham gives no opium. If, at the commencement of treatment, the patient appear much exhausted, he gives ammonia; but, as a rule, prefers to give, as medicine, hydrochloric acid in some bitter infusion, in order to increase the appetite and assist digestion. If the patient have been drinking hard up to the time of his coming under treatment, Dr. Fincham has found, on several occasions, great and rapid improvement take place after the action of a brisk purgative—*e.g.*, calomel and colocynth, or a drop or two of croton-oil. This must, of course, be followed by the due administration of nutritious food, &c.

Netley Hospital.—The system on which Dr. Maclean goes in the treatment of delirium tremens is, first to secure perfect quiet and seclusion for the patient, placing him under the care of careful and trustworthy attendants, who are instructed to use every means to calm and reassure the sufferer. The dangerous practice of forcing sleep by opiates, he never under any circumstances follows; nor does he allow the blood of a patient already poisoned by alcohol to be still further charged by the use of stimulants. Instead of this, he insists on the administration of strong beef-tea at short intervals, to which Cayenne pepper has been freely added. Without the addition of pepper, the stomach will rarely retain the nourishment. Food is absolutely necessary. A man who has been drinking to such an extent as to bring on this formidable affection, has, nine times out of ten, been eating little or nothing. Dr. Maclean is a great advocate for a darkened room and careful nursing by judicious male attendants. Women cannot restrain patients who, in their terror at the imaginary objects of "horror" by which they are surrounded, are apt to be violent. He regards with well founded disfavour the system of forcing sleep by large doses of morphia, and has seen more than one person die with all the symptoms of narcotic poisoning, who were thus treated.

Aberdeen Royal Infirmary.—Dr. Harvey has long since abandoned the practice of treating delirium tremens with heroic doses of opium, and of using much restraint with the jacket. His treatment of it has been, on the whole, "expectant"—letting the patient alone, giving him plenty of food, and moderate exercise in the ward or out of doors, if in a condition for it.

He is inclined, however, to think that, from his knowledge of the *calmative* action on the nervous system of bromide of potassium in full doses (twenty to thirty grains, repeated daily, at short intervals), this article of the materia medica will be found to prove a valuable remedy in the graver forms of the disease.—*British Medical Journal, July* 3, 1869, *p.* 7.

21.—CASE OF DELIRIUM TREMENS SUCCESSFULLY TREATED BY HYDRATE OF CHLORAL.

By Henry T. Chapman, Esq., London.

[The patient in this case was 60 years of age. On three previous occasions sleep had been procured by means of morphia, but in the attack which forms the subject of the following article, this had signally failed.]

At 12 on Tuesday night, about five hours after the last ineffectual dose of morphia, having obtained a supply of the hydrate of chloral from Messrs. Squire, of Oxford-street, I gave him gr. xxx. in sweetened water, which was fortunately retained by the stomach. In less than five minutes he was asleep, and slept heavily for nearly an hour, the muttering and convulsive movements ceasing entirely after half an hour. On waking he was quite composed and rational, drank some brandy-and-water, took gr. xx. more of the hydrate, and again fell into a lethargic sleep, which lasted till 8 on Wednesday morning. From that time his health and strength have steadily improved, and he is now (September 27) far advanced towards convalescence.

Few, I think, will be inclined to dispute that, but for the narcotism so rapidly supervening on the administration of the chloral, my patient was fast sinking into a comatose condition, which must have ended in death.

The same good results might very possibly have attended the subcutaneous injection of chloroform or chloral; but I can conceive that it would often prove a difficult matter to carry it into effect in delirium tremens. In the preceding case it would have been simply impossible.

Dr. Richardson's conclusion is, I doubt not, perfectly correct, that the hydrate of chloral will not "practically supersede opium and similar narcotising agents now in medical use." But may it not supply us with a valuable substitute for opium when that has failed, or where other conditions are present which militate against its employment?—*Medical Times and Gazette, Oct.* 2, 1869, *p.* 419.

22.—ON CERTAIN FORMS OF PARALYSIS AND THEIR TREATMENT BY ELECTRICITY.

By Dr. WALTER G. SMITH, Fellow of the College of Physicians;
Assistant Physician to the Adelaide Hospital.

It would far exceed the limits of a short paper to enter upon the discussion of even the principal beneficial results which electricity may be expected to fulfil in medicine, and I shall therefore restrict my observations to the consideration of the restoration of contractility in paralysed muscles, leaving aside for the present any notice of its effects in re-establishing sensibility, in reducing abnormal contractility, or diminishing hyperesthesia, for under these four heads are comprised its real and definite uses to the physician. Paralytic affections appropriately engage our attention first, when we recollect that it was in great measure owing to its successful application in the treatment of these affections that electricity was enabled to gain a permanent place among the resources of therapeutics.

The cases I am about to detail may be grouped into the following classes:—1st, Facial palsy; 2nd, Paralysis from the poison of lead; 3rd, Paralysis from local injury or pressure, whether it be on the nerve or directly upon the muscle; and, 4th, Rheumatic paralysis of the limbs.

Facial Paralysis.—It will be understood that electricity is not indicated in all cases of palsy of the facial muscles, and can only be useless, if not mischievous, in severe traumatic cases. For example, a boy (J. Dean) aged five years, a few days before admission into the Adelaide Hospital, under Dr. Barton (March 1868), had been accidently thrown carelessly over a soldier's shoulder, and had fallen on his head. He lost a great deal of blood out of the left ear, became feverish and cross, and had several attacks of convulsions at noon each day. Paralysis of the left side of the face gradually supervened, the sense of smell was impaired, as also that of taste on the left side of the tongue. The mouth was considerably distorted, and he was quite unable to close the eye. It was manifest that the paralysis here was beyond the reach of electricity, and a trial on two occasions with the primary or secondary current failed to elicit any decided contractions, except in the lower fibres of the orbicularis palpebrarum.

Electricity is likewise contra-indicated when the paralysis is due to tumours in the cranial cavity, or in the parotid region involving the seventh nerve, or to disease of the temporal bone.

In almost all cases of rheumatic facial paralysis the electromuscular contractility, at least after some time, is below par on the paralysed side, or may even be abolished altogether; and this is a point of capital importance, for in doubtful cases it will essentially aid us in diagnosing an excentric facial palsy from one of central origin. In the latter case the muscles respond normally to the electric stimulus, whether faradic or galvanic; and as this form is usually dependent on hemorrhage having taken place, we see how a wrong diagnosis might occasion a serious mistake as to treatment.

The prognosis in rheumatic facial paralysis is generally good, and is guided mainly by reference to the suddenness with which the affection has set in, and its duration, the age of the patient, and the electric excitability of the muscles; for in proportion as this property is preserved will the case be amenable to treatment. Particular attention should be paid to the latter condition in the progress of the case, because if the muscles show little or no signs of returning excitability we may fear that the disease will prove very stubborn, if not incurable.

In tolerably recent, or even in old cases, though the reaction towards the faradic current is diminished or lost, the reaction towards galvanic stimulation may be heightened.

Though, as is but natural, our treatment is most likely to be crowned with success in cases of recent date, yet instances have been recorded of a cure, or at least notable improvement, having been effected when the disease had continued for eight, twelve, or even fourteen years, and this would warrant us in not pronouncing any case hopeless merely on the ground of its duration. As part of the treatment, it is a common practice to apply small blisters in the neighbourhood of the ear or in the tract of the affected nerve; but I do not remember ever having seen any good result from such means, while the time thus lost may be most prejudicial towards recovery, and I am convinced that electricity will prove the most prompt and trustworthy means of treating this affection.

While admitting that the use of an interrupted *galvanic current* (from a constant battery), *i.e.*, galvanization, is necessary in some cases where faradisation fails to elicit contractions in the paralysed muscles, in the majority of cases the most suitable form of electricity is the primary current (*i.e.*, the current from the inner or thick and shorter spiral of an induction machine) applied locally, by means of pointed conductors tipped with moist leather, by direct or indirect faradisation. The secondary current (*i.e.*, the current from the outer or finer and longer spiral), causes much more pain on account of the greater intensity of the current, and the skin of the face, especially in the middle line, is acutely sensitive to electric stimulation. Sometimes only a certain number of the muscles are engaged, and even in the return to their normal state they recover with different degrees of rapidity, and hence we see the importance of directing the faradic treatment to the individual muscles. Stimulation of the muscles which have regained their proper contractility should be avoided, lest any tendency to subsequent contraction should be fostered, and, as a rule, the sittings should be short, and the use of strong currents dispensed with.

Facial paralysis illustrates well that local palsies, not dependent on central causes or on direct interruption of nervous continuity, are commonly amenable to electricity.

Paralysis from Lead Poisoning.—The cause in these cases is usually sufficiently manifest, but as the patient may not be aware of the channel by which lead has entered the system, in all cases of local paralysis of the limbs, with diminished excitability of the muscles, strict investigation should be made as to the possibility of the unsuspected presence of lead, *e.g.*, tailors may be contaminated by holding between their teeth the measuring tape, which has been coated with an enamel of white lead; silk thread is occasionally adulterated with sulphide of lead (produced by steeping the thread in acetate of lead, and then exposing it to sulphuretted hydrogen), and persons have been poisoned by using flour that had been ground by millstones in which some hollows were filled up with lead.

The cases I shall presently instance are all examples of paralysis of the upper extremities, saturnine paralysis of the lower extremities being comparatively unfrequent.

The middle portion of the common extensor seems generally to be first engaged, the affection gradually extending to the other extensors of the fingers and wrist, and implicating the special palmar muscles, except the interossei and lumbricales, for it is important to observe that the interossei and lumbricales seldom suffer from the poison of lead. This remarkable exemption of those particular fasciculi explains why it is that if the first phalanges be supported the patient will be able easily to extend the second and third phalanges, while he is quite incompetent to do so when the hand is let hang freely. Electro-muscular inquiry has shown that the extensor communis extends the first joint *only*, and is powerless to raise the second and third, but the extension of these latter is effected by the interossei and lumbricales, which at the same time flex the first phalanx, and consequently, if the metacarpal phalanx of the fingers be fixed, these small muscles can act independently, and are capable of moving the fingers with facility. If the fingers be flexed into the palm, and an attempt be made to extend the ring finger alone, it will be found impossible to extend the first phalanx of it without moving the adjacent digits, on account of the connecting processes which pass from its common extensor tendon to those of the middle and little fingers, but the extension of the two further joints of that finger can be quite easily accomplished, the other fingers remaining flexed, because the interossei and lumbricales act independently of the common extensor.

The electro-muscular contractility is usually diminished, and often entirely lost, and in severe cases there is marked atrophy of the tissues, but there is no constant proportion observed between these conditions, or between the amount of atrophy and the degree of paralysis. The electric sensibility is generally lessened, but often partially relaxed.—(Benedikt.)

This diminished motor reaction is of value diagnostically, for the paralysis is not necessarily preceded by constitutional symptoms, which would render its recognition easy, and conversely "when the muscles of a paralytic limb move well under the influence of the electric current, we may fairly conclude that there is no lead in the system."—(Althaus.)

In two cases I observed that the susurrus of the excited muscles was interrupted and crepitant.

Since the larger muscles on the forearm are those chiefly impaired in function, faradisation is best directed to the muscles by moist sponge electrodes, which cover some extent of surface, but it is to be remembered that too large a sponge offers very considerable resistance to the passage of the current. When it is desirable to act on particular muscles or on small surfaces, such as the thenar and hypothenar prominences, the small conical electrodes should be employed to ensure the proper localisation of the current; and in some cases, where the usual method of faradisation was insufficient to evoke muscular contractions, I have resorted to electro-puncture with success. This latter method is, of course, far more painful, and requires the intensity of the current to be cautiously adjusted.

We may, I think, congratulate ourselves on the more generally recognised value of a precise electric treatment in this malady since 1857, when Sir T. Watson could only say that "for helping to restore to the damaged muscles their lost power, electricity has been thought useful, applied in the way of sparks at first and of slight shocks afterwards, along the muscular parts of the extensors of the fingers. In the electro-magnetic apparatus, he adds, we have a more accessible and probably a not less efficacious means of furnishing the requisite stimulus."—(*Lectures*, 4th edit., ii., p. 511.)

Case 1.—A house painter (J. Kane), aged 26, of a robust frame, and temperate, but a heavy smoker, was admitted into the Meath Hospital in October, 1863. He had been at his employment for about eighteen years. Five years ago he had an attack of colic, and within the last two or three years has suffered from several similar attacks, and he is at present labouring under a severe one. About a week ago, he detected quiverings in the right arm, and this was soon followed by gradually increasing loss of power, especially in the ball of the thumb, which. indeed, has never been quite strong since the first invasion of colic. Partial drop-wrist of the left hand existed, and there was advanced atrophy of the palmar and and extensor muscles of the right limb. Local faradisation of the muscles was commenced on the 28th October, and in *five weeks* the arms were perfectly strong, and extension of the wrists nearly restored. The contractility of the extensors of the fingers and wrists of both arms was completely abolished, and transient muscular tremors followed the first application of electricity to the right arm, while evident marks of improvement were afforded after one or two day's treatment.

Case 2.—A man (P. Joyce), aged 44, was admitted into the Meath Hospital in December, 1864. A painter by trade ; for thirty-five years he never had any saturnine symptoms, till an attack of colic three months previously. Both arms are now weakened, even as high as the shoulder muscles, and the ball of the right thumb in particular is atrophied. On the 4th of January, faradisation was resorted to, and a decided improvement set in after a few days, and the muscles rapidly gained in contractile power. In three weeks his arms were very much stronger, but unfortunately I have no further notes of the case.

Case 3.—In May, 1866, a robust man (William Sheffield), aged 56, was taken into Sir P. Dun's hospital. For the last forty years he has been engaged in painting, papering, or colour-grinding, and has had colic twice before his present illness, which dates back nearly two months. Both arms, and especially the right, are partially paralysed, but there is not complete drop-wrist, and no turning in of the hand. On the 12th of May I commenced faradisation, and readily obtained contractions without causing pain. Very soon improvement was perceptible, and the atrophied muscles of the right thumb resumed their normal bulk and firmness, and his writing became legible. This progressive improvement continued, and in about *three weeks* he left hospital by his own wish, having nearly recovered the full use of his hands. He was cautioned against resuming work too soon, but was obliged to do so, and in Oct., 1867, he applied for admission into the Adelaide Hospital under Dr. Head. A fortnight after leaving Sir P. Dun's Hospital, he resumed work as usual, and improved steadily, while so engaged, till about three weeks ago he began to suffer from pain and tenderness along the tibiæ, and his general health declined. Soon the ring and little fingers of the right hand lost their strength, and within the last week the debility and muscular wasting have rapidly increased. Tremors in the muscles of the legs have come on, and spasmodic startings are observable in the lips, eyebrows, &c., while the muscles generally are easily excited to reflex action. No colicky symptoms at present. A moderately tight ligature applied on either thigh completely checks the tremulous movements in that limb, and on tickling the skin of the leg no reflex movements occur in it, but powerful ones in the *opposite* lower extremity.

Muscular faradisation was commenced on the 13th of Nov., and regularly continued. The atrophied muscles soon showed evidence of increased nutrition, and in *one* month he left hospital, having nearly regained the full use of his fingers.

In conclusion, the general principles of muscular faradisation may be thus summed up:—

1. The current should be directed *locally* to the diseased part.
2. The not obtaining visible contractions at once does not warrant us in neglecting to proceed with the electric treatment.
3. *Indirect* faradisation (*i. e.*, where one electrode is placed over the trunk of the nerve) is generally preferable to *direct* faradisation (*i. e.*, where both poles are placed upon the muscle).
4. The use of painful currents is to be discountenanced, and in no case should a feeling of fatigue be induced in the muscles.
5. The difference in the effect of the same electrical stimulus on different muscles is not due to any inherent variations in their electrical sensibility, but simply to physical and anatomical considerations, such as the thickness of the skin and subcutaneous tissues, and the copiousness of the motor-nerve supply of the muscles.
6. In order to lessen the resistance of the epidermis as much as possible, the skin underneath the electrodes should be kept thoroughly moist with salt water, and since *liquids* conduct better when warm than when cold, tepid water should be preferred.
7. To produce contraction of *individual* muscles the small pointed electrode should be connected with the cathode or negative pole of the apparatus, and be placed *firmly* on the skin at the "motor points," or "points of election" (*i. e.*, the points of entrance of the motor-nerves into the muscles).—*Dublin Quart. Journal, Aug.* 1869, *p.* 55.

23.—ON LOCOMOTOR ATAXY.

By Dr. J. Lockhart Clarke, F.R.S., &c.

The curious disease known by the name of locomotor ataxy is very imperfectly understood even by those who have had many opportunities of observing it. A great number of practitioners have never seen a case, or at least have not diagnosed it when they have seen one. It is not uncommon to find locomotor ataxy mistaken for some form of cerebral or spinal paralysis, and cerebral or spinal paralysis mistaken for locomotor ataxy. The pathological physiology of this disease is not well understood even by those who are more expert in its diagnosis; while specimens of its morbid anatomy have been seen only by a very few British practitioners, since I believe I am the only person in this country who has made it a subject of investigation.

For these reasons I thought that, while practitioners from all parts of the kingdom are now met together, it would not be uninteresting to select, and illustrate by specimens of morbid anatomy, two cases of locomotor ataxy, one of which presents all the symptoms characteristic of the disease, while the other is wanting in some of those symptoms, and therefore might be, to the inexperienced, a subject of difficult diagnosis. I shall not, however, now dwell on the different diagnosis of the disease. Those who wish for further information on this point, I may refer to the writings of our distinguished visitor, Dr. Duchenne de Boulogne, whose name is identified with this disease, and to my own article on locomotor ataxy in the first volume of St. George's Hospital Reports. But, before I read the cases which I have selected, it may be well to give the briefest possible outline of the symptoms and course of the malady.

In a great number of instances, the first symptoms make their appearance in the form of strabismus, with diplopia, which may disappear for a time and then return; or in the form of amblyopia or weakness of sight, which may go on to complete amaurosis. After a variable period, these symptoms are accompanied by so-called "rheumatic" and lancinating pains, which occur at variable intervals, in different parts of the limbs. In many cases the ocular disturbances, except perhaps extreme contraction of one or both pupils, never make their appearance; the pains, which may extend over months or even years, accompanied by some weakness, being the first in the train of symptoms. Either at the same time, or subsequently, there is commonly more or less numbness in the feet and legs, in the hands and arms, and sometimes in the face. Sooner or later, the patient begins to find that he cannot properly maintain his balance; that he totters in walking, like a man partially intoxicated, or that he cannot guide the movements of his fingers. He has lost to a certain extent, the power of controlling the action of some of his voluntary muscles. Still later, the voluntary movements become more or less jerking or spasmodic; and in the course of the disease other symptoms supervene, as incontinence of urine and dysuria, which frequently alternate in the same patient; loss of control over the sphincter ani; generally, though not always, loss of sexual power and desire; occasional hyperæsthesia over certain parts of the limbs; and sensations of tightness around the body and limbs. In rare cases, of which I have seen two, the senses of smell and taste are impaired. Usually, the patient's general health is not much affected, and his intellect remains unimpaired. Locomotor ataxy is a disease which occurs more frequently about the middle period of life, and is much more common in men than in women.

Morbid Anatomy.—The morbid anatomy of locomotor ataxy consists chiefly of a certain grey degeneration and disintegration of the posterior columns of the spinal cord, of the posterior roots of the spinal nerves, of the posterior grey substance or cornua, and sometimes of the cerebral nerves. A variable number, and frequently, in the latter stages of the disease, nearly all the nerve-fibres of the posterior columns and posterior roots fall into a state of granular disintegration, and ultimately disappear. Usually, the posterior columns retain their normal size and shape in consequence of hypertrophy of connective tissue, which replaces the lost fibres. In this tissue, at wide but variable intervals, lie imbedded the remaining nerve-fibres, with the *débris* of their neighbours, in different stages of disintegration. In some places they are severed into short portions, or into rows of globular masses, formed out of their medullary sheaths, or white substance, which has been stripped from their axis-cylinders. In other places they have fallen into smaller fragments and granules, which either lie aggregated in the line of the original fibres, or are scattered at irregular distances. Corpora amylacea are usually abundant, and oil globules of different sizes are frequently interspersed among them, and collected into groups of variable shape and size around blood-vessels of the part. I am inclined to believe, from my own investigations, that, in the course of the disease, the posterior cornua of grey substance are *always* more or less affected, as I have elsewhere pointed out; and it appears to me to be a question whether they are not the first parts, or at least amongst the first parts, that are morbidly changed. I have also shown, and will show you to-day, that in some cases the deeper central parts of the grey substance are more or less injured by areas of disintegration. These latter lesions, however, are not essential to the production of locomotor ataxy, the peculiar symptoms of which depend solely on lesions of the posterior columns, of the posterior nerve-roots, and probably of the posterior cornua. The cases in which they occur may be considered as mixed cases, partaking of the nature of locomotor ataxy and common spinal paralysis,—*British Medical Journal, July* 3, 1869, *p.* 4.

DISEASES OF THE ORGANS OF CIRCULATION.

24.–CASES ILLUSTRATING THE INFLUENCE OF CONVECTION IN DETERMINING THE SEAT OF CARDIAC MURMURS.

By Dr. HYDE SALTER, F.R.S., Physician to Charing-Cross Hospital.

[We now and then meet with cases in which the ordinary ideas we have as to the point of greatest intensity of cardiac murmurs would lead us wrong in their diagnosis.]

The fact is, the localisation of cardiac murmurs is commonly regarded as determined by one agency, *conduction;* whereas in reality it is determined by two agencies, *conduction* and *convection;* and where the principle of convection determines it we should be utterly foiled in endeavouring to explain what we find on the principle of conduction, and should run, by relying on this principle alone, great risk of falling into serious error.

Now let me just explain to you the difference between conduction and convection, and then you will see how differently they would localise the same sound, arising at the same point within the heart. The conduction of sound is, as you know, its transmission by the vibration of the particles of the conducting medium: but these particles do not change their place; the waves of vibration or undulation pass through them (are indeed effected by them), but the particles remain where they were before. The convection of sound, on the other hand, is its transference from one place to another by and through the movement of the conveying medium. Conduction depends on atomic movement; convection on movement in mass. Conduction, the medium being the same throughout, is the same in all directions; convection takes place only in one direction, the direction, namely, in which the medium is moving. Conduction may be effected by solids and fluids alike; convection only by fluids, or by solids suspended in fluids, so as to have free movement. As an example of conduction, I may instance the sound heard on applying the ear to one end of a piece of timber when the other is scratched by a pin; as an example of convection, the sound of distant bells wafted by the wind. Sometimes conduction and convection act in concert, sometimes in opposition; in the one instance convection greatly aids conduction, in the other it tends to neutralise it. As an illustration of this I may recur to the example which I have just instanced—the effect of wind in conveying the sound of bells. If the air is calm the sound is conveyed equally in all directions; but if there is a strong wind it is heard much further in the direction in which the wind is blowing; while in the direction *from* which it is blowing it will be inaudible at a very short distance.

I think this explanation will be sufficient to make intelligible to you what I mean by the convection of sound. You see it is necessary, first, that the particles of the fluid should be in a state of sonorous undulation, and then that the whole body of the fluid should be in motion, whereby the direction in which these undulations shall be propagated is determined.

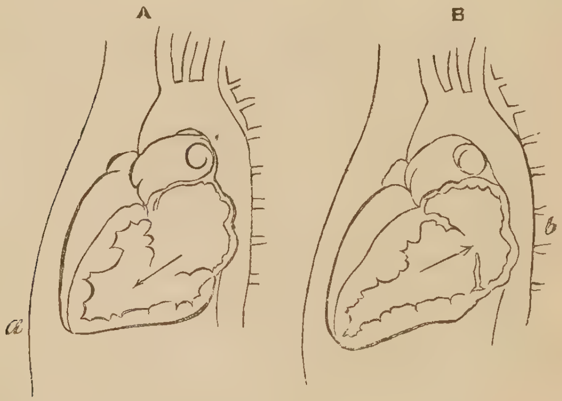
Let us now apply these principles to the elucidation of certain phenomena which we discover in the auscultation of cardiac murmurs.

In cases of valvular disease of the heart we have all the conditions necessary for the convection of sound. In the healthy state of the heart we have not. In health the blood only moves one way—forwards; and its forward movement appears to generate no sound; both the sounds of the heart coincide with and depend on the closure of orifices (and therefore with the cessation of blood-movement) at the point where they are generated;—where the blood is moving there is no sound, and where the sound is produced there is no blood-movement. But in disease, such as to generate cardiac murmurs, the conditions of health are abrogated in both these particulars; for, in the first place, the blood, in passing through the orifices, is thrown into sonorous vibrations; and, in the second place, it often moves both ways—backwards as well as forwards. Thus the vibrations of which the blood is the vehicle may be transmitted either in the one direction or the other, according to which way it is passing through the orifice at the time the murmur is generated. So that we frequently see in heart-disease a manifestation of departure from health in two ways—a development of vibrations that ought not to exist, and an alternative of directions in which these vibrations shall be carried.

Case 1.—The first case to which I will direct your attention, in illustration of what I have just said, is that of James W., a stout, strong, healthy-looking young man, but with a slightly puffed and bloated face, 19 years of age, and by occupation a farm labourer. He was quite well up to five years ago, when, being 14 years of age, he had rheumatic fever. He was laid up with it a month, immovable in bed, and during his attack suffered from pain in his chest, shortness of breath, and palpitation. From that time he was unable to get about as quickly as he did before, on account of shortness of his breath and beating of his heart. He did his farm-work, however, without inconvenience till two years ago, when he began to be seized, on making any violent exertion, or walking fast, with a pain in the left breast, left shoulder, arm, and hand, and left leg down to the knee. The pain obliged him to stop whatever he might be doing, and and then, after he had stood still or sat down for five minutes, it would pass off and he would resume his work. In a quarter of an hour, perhaps, he would be seized again, and again have to stop; and so he would go on all day. The paroxysms of pain were always on the left side of the body, but shooting sometimes a little to the right of the upper sternum; they were accompanied with a sensation of faintness and sickness, a fluttering beating of the heart, and a feeling that if he did not stand still he should drop. The attacks of palpitation would sometimes seize him when he was still, but unaccompanied with the other symptoms. In this way he went on, getting worse and worse, and less and less able to do his work, till nine weeks ago (three weeks before he came into the hospital), when he found he could not continue the struggle any longer, and finally gave up. On admission his state was found to correspond with his description, his breath and pulse being much accelerated by any exertion: when at rest I found them to be 28 and 112 respectively; pulse very small, but regular.

Physical examination.—On exposing the chest a great prominence and bulging of the left side is conspicuous, involving the whole precordial region, and extending even beyond it; it affects chiefly the cartilages of the fourth, fifth, sixth, and seventh ribs on the left side. Over the whole seat of this bulging the heart is seen beating with a heaving action, and even down into the epigastrium, and along into the left hypochondrium. The precordial dulness is commensurately extended, across considerably to the right of the lower sternum, well down into the epigastrium, and even below the margin of the left false ribs. The apex beat is a good inch lower than natural. At the base the second sound is a little indistinct, but the first sound does not seem to be modified. At the apex a grinding bruit is heard, *immediately preceding an apparently natural first sound*, and terminated by it. On working back well into the axilla, and not until the axilla is quite reached, a *systolic* murmur begins to reveal itself, increasing in distinctness as you work round to the back, where it is loud and strong. It is audible over the whole of the left side of the back. On returning again to the front, to the region of the apex, it is quite lost, and the pre-systolic bruit is again heard.

Here we have two murmurs, both of them undoubtedly generated at the same orifice,—both of them mitral,—but which, though originating at the same point, are conveyed to the chest-wall in such different directions, that not only do their points of maximum intensity differ, but there is not any one point in the chest where they are both of them audible. At the apex, where you hear the pre-systolic sound you cannot hear the systolic, and when you have moved within the range of the systolic, you have lost the pre-systolic. So that although the mitral orifice is the seat of a double murmur there is no one point in the chest's surface where it does not appear to be single. Now on the principle of *conduction* this would be inexplicable. Starting from the same point both the murmurs ought to be equally, or at least proportionately, audible at any point of the surface of the chest; where you hear the one you should also hear the other. But on the principle of *convection* the thing becomes immediately intelligible. At the time of the pre-systolic murmur the blood is rushing forwards through the mitral orifice towards the apex, and carries the murmur thither; at the time of the systolic murmur the blood is rushing back through the mitral orifice into the auricle, and carries the murmur thither. And not only does the blood-stream carry the vibrations in these respective directions at these respective times, but prevents that conduction of them in the opposite direction which would otherwise take place: the blood rushing forward just before the systole prevents the pre-systolic murmur being heard behind, while the blood rushing backwards *at* the systole prevents the systolic murmur being heard in front; just as a high wind prevents the sound of bells being heard at a distance to windward, at which, if the air was calm, it would be perfectly audible.



Your comprehension of the different direction that mitral murmurs take, according as they are systolic or pre-systolic — regurgitant or obstructive,—may be facilitated by reference to this diagram, which I have altered from a sketch kindly lent me by Dr. Sibson, and for the accuracy of which, therefore, at least as far as the original is concerned, I need not vouch. It represents a lateral view of the heart, seen from the left, the left chambers, auricle and ventricle, being opened by an imaginary antero-posterior section through them, including the auriculo-ventricular orifice and valve. The anterior border is that of the right ventricle; the truncated vessel springing from it above, the pulmonary artery; above that again you see the arch of the aorta, and behind the descending aorta are indicated the bodies of the vertebræ with which the vessel is in contact. A represents the period of the pre-systole—that is, the moment when the auricle is just contracting to distend the ventricle with its last blood; B represents the period of the systole, or contraction of the ventricle. The valves in both cases are imagined so diseased as to offer obstruction in the one instance, and permit reflux in the other. The arrows indicate the course of the bloodstream at the respective periods. In Fig. A you see the direction of the blood-stream at the moment that a pre-systolic murmur would be produced; that it is downwards and forwards, and that by it the sound would be carried directly to the heart's apex, and therefore have its maximum intensity at *a*. In Fig. B you see the direction of the blood-stream at the moment a systolic murmur would be produced; that it is backwards, and that by it the sound would be carried into the auricle, and therefore be audible at *b*, in the neighbourhood of the spine and left scapula.

I do not know that I ever met with a case before in which a mitral regurgitant murmur appeared to be absolutely inaudible at the apex; and in this respect the case is remarkable. But I have habitually met with cases, and pointed them out to you, in which such a murmur is very feeble at the apex, and much clearer and louder in the direction of the axilla; and I am sure it is a mistake to make the apex, as is commonly done in books, the seat of the maximum intensity of mitral systolic murmurs. I would go so far as to say, that in my experience the true apex is never the seat of *maximum intensity* of mitral systolic murmurs; that I have never met with one in which the sound did not come out clearer on leaving the apex, and passing to the axillary side of it. Dr. Walshe states that such murmurs may be "audible, or not, round the lateral base of the chest from the cardiac to the scapular region." As far as my memory serves me, I have never met with one that was not so audible. Nor do I believe with Dr. Sibson, that the reason why the murmur *appears* louder as you pass to the left of the apex is, that in this direction you lose the normal element of the first sound, but retain the murmur, which therefore, is better heard, but is not really louder. I believe the murmur itself is louder, often much louder; and I am sure that you will bear me out in this, from many cases that I have pointed out to you.

But this is a very different thing from a mitral systolic murmur being *absolutely inaudible* at the apex. Whether this inaudibleness was apparent and not real—whether there was a faint murmur at the apex during the systole, but so feeble as to be completely masked by the loud pre-systolic murmur that immediately preceded it; or whether, if there was no sound whatever, its absence was due to the small amount of blood in the ventricle, in consequence of the mitral constriction which the pre-systolic sound indicated, I will not say.

This case proves another point: it proves that a valve sufficiently imperfect to allow regurgitation, and give rise to a considerable regurgitant murmur, may nevertheless close sufficiently sharply and completely to generate a natural first sound; for at the apex the pre-systolic murmur was heard "immediately preceding an *apparently natural* first sound," although on working round to the axilla and back, undoubted evidence of mitral regurgitation revealed itself. The mere fact, therefore, that in certain situations either of the cardiac sounds has a natural character cannot be taken as safe and sufficient evidence that the valve-closure which gives rise to that sound is complete, and that there is no reflux.

And it proves yet another point: that sounds generated by blood-friction and sounds generated by valve-tension are no conducted by the same means or media. Between the valve and the wall of the ventricle there is direct continuity of structure, and therefore the natural element of the first sound, due to the sudden tension and shock of the valve, is conveyed by the ventricular wall to the apex. Not so the murmur—the blood is the seat of that, not the valve; and as the blood is the seat of it, so is the blood the vehicle of it; and since all the blood that is the seat of it passes back into the auricle, thither, and thither alone, is the sound conveyed. And I hold that (in this case at least) the absence of any portion of the systolic murmur at the apex is a proof that no vibrations of the valve were concerned in its production, for if they had been, what was to prevent their conduction to the apex in the same way as the tension-sound?

[In a note to the editor of the Lancet, Dr. Salter writes in reference to the above :]

In my lecture a passage occurs which so erroneously represents what I meant to convey, and is so open to misconception, that I would beg to be allowed to say a word or two in correction of it. The passage I refer to occurs in the last paragraph, and is as follows :—" Between the valve and the wall of the ventricle there is direct continuity of structure, and therefore the natural element of the first sound, due to the sudden tension and shock of the valve, is conveyed by the ventricular wall to the apex. Not so the murmur—the blood is the seat of that, not the valve; and as the blood is the seat of it, so is the blood the vehicle of it; and since all the blood that is the seat of it passes back into the auricle, thither, and thither alone, is the sound conveyed."

Now it might be inferred from this that I was of opinion that a mitral regurgitant murmur was inaudible at the apex—an opinion that would be in contradiction of one of the most evident and undisputed facts in auscultation. What I meant to say was, that the backward current of the blood at the time a mitral systolic murmur is generated is the reason why that murmur is heard at the back, and must have been the reason, *in the case under discussion*, why the murmur was not heard at the apex at all. As an expression of a general fact, the words "and thither alone," ought to have been left out. Every day's clinical observation tells us that, as a rule, a large proportion of the murmur in mitral regurgitation is conveyed to the apex by conduction.—*Lancet, July* 24 *and* 31, 1869, *pp.* 113, 189.

DISEASES OF THE ORGANS OF RESPIRATION.

25.—THERMOMETRIC OBSERVATIONS ON PNEUMONIA.

By Dr. Thomas Wrigley Grimshaw, Lecturer on Materia Medica in Steevens' Hospital, Dublin.

Perhaps there is no local disease, the febrile symptoms of which so closely resemble those of the specific fevers as pneumonia. Indeed the invasion of this disease resembles so much that of typhus, that it is frequently mistaken for it in its earlier stages, and many cases are sent to fever hospitals as cases of specific fevers. Thus, in the year 1866 the total number of cases admitted into the London Fever Hospital (Liverpool-road) was 3,577; of these 590 were cases which had been sent to the hospital by mistake for specific fever; out of these 120, or about exactly one-fifth, were cases of pneumonia.

Again, in Glasgow, in the year 1865-66, there were admitted into the City of Glasgow Fever Hospital 1,318 cases, 64 of which were not specific fevers, and of these 64 cases 27 were pneumonia. Out of 547 cases in 1866-67, 37 were not specific fever, and of these 15 were pneumonia. In 1867-68, out of 969 cases admitted 45 were not specific fevers, and of these 15 also were pneumonia.

We thus see that in the two largest cities in the kingdom a large number of pneumonia cases are annually mistaken for fever (usually typhus) and sent into hospital. I have not had time to examine the statistics of the Dublin Fever Hospitals ; but of Cork-street I can state that the number of pneumonia cases sent in there in mistake for typhus is considerable. What is the cause of these mistakes, and why is it that a large number of cases of inflammation of the lungs are annually subjected by mistake to the risk of taking fever in our fever hospitals? The answer is simply this :—A medical man accustomed to attend the poor in their own houses is called to a patient, finds them with quick pulse, high temperature, furred tongue, and all the symptoms of commencing typhus ; probably the patient says he has been longer ill than he has, and does not mention anything particular about his chest, and the medical man, consulting the interest of the patient, at once (on seeing such intense febrile symptoms) sends him to a fever hospital in order that no time may be lost in placing such a severe case in the the most favourable condition for recovery. The error here is owing to the close resemblance between the febrile symptoms of pneumonia and those of typhus. This close resemblance makes the symptoms of these cases specially worthy of investigation. The chief and essential condition of fever is increased temperature ; therefore when inquiring into the course a fever follows, and the variations it passes through, it is really the variation of temperature which most concerns us. The high temperature of the skin in pneumonia patients is a matter of everyday observation, but accurate thermometric observations upon them have not been plentifully recorded. Dr. Addison remarks on this high temperature, and says :—"But of all the symptoms of pneumonia. the most constant and conclusive, in a diagnostic point of view, is a pungent heat of surface ; by this symptom alone the first stage of pneumonia may, in most instances be easily recognised, and by this symptom alone I have repeatedly pronounced the existence of pneumonia, before asking a single question or making the slightest stethoscopic examination of the chest. The presence of this symptom has scarcely ever yet deceived me in the most complicated forms of inflammation within the chest." Dr. Addison also remarks :—"Notwithstanding its close resemblance to an attack of continued fever—a resemblance so great that even the stethoscopist is thrown off his guard—attentive observations will, in most cases, enable us to recognise the difference."

Dr. Walsh quotes Addison, and also refers to the high temperature in this disease, and states that he has himself observed a temperature of 106°.

Since the clinical use of the thermometer has become more general than it was in the days of Addison, less attention has been paid to the thermometry of pneumonia, than of other acute diseases; nevertheless numerous and very accurate observations have been taken in this disease by the late Dr. Warter and by Dr. Compton. To these and to the observations of others, I now propose to add my own experience, believing that true results can be arrived at only by comparing the aggregate results of numerous observers.

First, let us consider the observations of others; Dr Warter says:—"The temperatures seem to me to rise to a considerable height at once, for in the only case in which I tried it on the 1st day, the thermometer rose to 102°·8, rising gradually . . . seems to attain its greatest elevation on the 4th, 5th, and 6th days . . . the 4th being the most common. On this date, temperatures of 104° and 105° are to be met with and . . . after this the temperature falls pretty rapidly *together with* the pulse . . . Should the declining temperature of a case of pneumonia take a fresh rise, some new strip of pleurisy or pneumonia may be stated almost positively to exist. Contrary to what we might expect, double pneumonia does not seem to cause more febrile disturbance, as far as the curve of temperature is concerned, than by inflammation of one lung. The most fatal cases of pneumonia are certainly not those where the temperature ranges highest. . . . I have taken normal temperatures where there has been bronchial breathing and mixed crepitation from top to bottom in one lung, and when the other was partially involved. Dr. Warter gives the following:—

Day.	Temperature.
3	103°·75
4	104°
5	103°
6	102°·8
7	100°
8	99°
9	98°

Dr. Compton does not refer particularly to pneumonia, but gives the following range of temperature for that disease, taken from a female, aged sixteen:—

Day.	Temperature.
2	103°
3	104°·75
4	104°
5	104°·5
6	98°·8
7	98°·5
8	96°

The highest point, it will be observed, is 104°·75.

The following range of temperature is given by Dr. Parkes :—

Day.	Respiration.	Pulse.	Temperature.
3	36	108	103°·6
4	36	107	103°·9
5	43	106	103°·4
6	38	93	100°·6
7	30	86	98°·6
8	31	76	98°·5

where no treatment was employed but a few leeches. I only give the mean temperature for each day, from which it will be seen that the highest mean was reached on the fourth day.

I have now to add the experience of another observer, before I detail the results of my own observations. Since the greater portion of the materials for this paper were arranged and the most of it committed to writing, an important paper by Dr. Maclagan, of Dundee, on the thermometric range in pneumonia has been published in the current number (February, 1869) of the Edinburgh Medical Journal. This article escaped my notice until a week ago, and owing to its vague title, "Thermometrical Observations," I did not, when I first noticed it, examine it as carefully as I should have done, if I had known that it referred especially to the disease under consideration. The conclusions of Dr. Maclagan do not altogether (though pretty closely) accord with those arrived at either by the previously mentioned observers or by myself. Dr. Maclagan's observations should have an interest which none others have, except the case recorded by Dr. Parkes already noticed, namely, that there were "sixteen cases of uncomplicated pneumonia (one or two of which have been detailed in his paper) which it was believed might safely be left to take their natural course." I am not sure, however, what Dr. Maclagan considers being left to take their "natural course" means, as he mentions one case as allowed to run a natural course without the application of "remedial agents," which nevertheless (although a girl of only 14 years of age), was allowed four ounces of wine daily! In Dublin, however, we should consider it an important element of treatment. Dr. Maclagan also considers light diet (perhaps including *wine*), poultices, and in one case, blisters over the affected side, *no* treatment! I cannot agree with him in this, nor am I of the opinion that we can afford to stand by, and watch any case of pneumonia taking its natural course, even for the sake of science, I give a range of temperature taken by Dr. Maclagan in a case which apparently did not get any wine but was *only* blistered, as a fair average case of pneumonia.

Day.	Respiration.	Pulse.	Temperature.
4	56	120	102°·3
5	56	120	103°
6	38	96	99°·1
7	32	72	96°·4
8	32	68	96°·8
9	28	72	97°·1
10	36	72	97°·1

With a view of obtaining a *mean* range of temperature, I have made a calculation from about 20 cases.

Day.	Temperature.
3	102°·75
4	100°·8
5	101°·38
6	100°·34
7	99°·12
8	100°·11
9	100°·32
10	99°·31
11	98°·77
12	98°·42

Such a range will, of course, seldom if ever be met with in any *one* case, but it shows what may turn up, generally as to its highest and lowest temperature, and occasionally as to its variations, namely, the highest temperature is usually met with on the 2nd, 3rd, or 4th, to 5th days, and the lowest after the 6th. We also observe irregularities; for instance, a rise on the 5th, and on the 8th and 9th days. I do not attach much importance to such an average for pneumonia, but give it merely as it is usual in other observations of the kind.

When pneumonia occurs *as* a complication of another disease it causes a temporary *increase* in the temperature; for instance there was a boy affected with typhus, in whom an attack of pneumonia occurring on the 9th day was preceded by a rise of temperature to 104°·5, it having previously fallen to 103°. In a case of typhoid, where the temperature had been up to 104°·8, and gradually fallen to 102°, it again rose to 104°·6 on the accession of pneumonia, afterwards falling to 102°, and again rising to a 104°·8 on an increase of the pneumonic symptoms. I do not find that in pneumonia of both lungs the temperature is higher than when only *one* lung is attacked, nor does the extent of tissue affected make much difference. As to the relation of temperature to other conditions, I find that the temperature attains its maximum during the period of expectoration of rusty coloured matter, but falls while this still continues; in other words, it attains its maximum and begins to fall during the second stage of the disease. Dr. Maclagan states that the fall does not occur until the third stage commences. It is well known however, that *all* the stages of pneumonia are usually present during a considerable portion of the duration of each case. I therefore prefer to speak of the duration of the rusty sputum to speaking of any special stage as all stages may co-exist.

This observation has some relation to the question whether pneumonia is essentially a local disease or local manifestation of a specific fever, Certainly, the fall of the temperature before the lung mischief is on the decline—indeed we may say before it is complete—rather points to the disease being of the character of a specific fever. I am rather inclined to this opinion myself, but do not propose to pursue this question further at present (interesting though it be). With reference to the relation of temperature to other symptoms—pulse and respiration particulary, I find that the pulse and temperature usually fall together or the latter shortly before the former; thus, in 12 cases where the relation between the pulse symptoms is specially and exactly noted, in 6 the temperature and the pulse fell together, in 5 the the temperature fell shortly before the pulse, and in one only the pulse fell before the temperature. The fall in temperature does not generally, as in other diseases, precede the fall in the rate of the pulse. The high temperature corresponds also in most cases with typhus pulse—*i.e.*, a pulse of very low tension, easily influenced by pressure.

As a means of diagnosis the temperature may be useful in distinguishing the disease from typhus, for the maximum in this disease is always attained before the 6th day, usually on the 3rd or 4th; whereas in typhus the maximum is not usually attained until the 7th day or later; thus, if one finds a patient with febrile symptoms and a very high temperature (103° or more) on the 3rd or 4th day, we may suspect pneumonia, and almost certainly exclude typhus, which is the disease most liable to be confounded with it. The following conclusions are, I think, justified by the foregoing observations :—

1st. Pneumonia has (when uncomplicated) a tolerably definite range of temperature.

2nd. The highest temperature attained is usually between 103° and 104° Fahr.

3rd. The maximum temperature is usually attained on the 3rd 4th, or 5th day, after which the temperature falls and reaches the normal on the 6th or 7th day.

4th. The height of the thermometer does not necessarily indicate the intensity of the disease.

5th. The fall of temperature does not indicate the cessation of mischief, but only that the disease is about to enter on the 3rd stage.

6th. If a high temperature is maintained for a long time (more than 3 or 4 days) or a fresh rise takes place, it indicates a fresh attack in a previously healthy part, or the advent of a complication.

7th. The temperature and pulse usually, though not always, rise and fall together.

8th. The temperature usually decreases before the frequency of the respirations diminish.

9th. A high temperature before the 6th day in a doubtful case generally indicates it to be one of pneumonia and *not* of typhus.—*Dublin Quarterly Journal, May* 1869, *p.* 335.

26.—CASE OF PERSISTENT AND ALARMING HICCOUGH IN IN PNEUMONIA, CURED BY THE SUBCUTANEOUS INJECTION OF MORPHIA.

By Dr. JOHN CONSTABLE, Leuchars, Fifeshire.

[The patient a man 30 years of age was labouring under the ordinary symptoms of pneumonia arising from cold. A persistent hiccough had begun shortly before Dr. Constable arrived. At first little attention was paid to the hiccough, but by the second day it was still unrelieved and was exercising a very prejudicial effect on the case.]

May 13th. Patient very much exhausted and distressed, as the hiccough, with scarcely any interval, had continued all night as severely as ever. I was at my wit's end, not on account of the pneumonia proper, which was progressing as favourable as could be expected, but because of this formidable and persistent hiccough. I continued some of the above-mentioned remedies, and asked Professor Bell, of St. Andrews, to see the patient with me in the evening. He confirmed my diagnosis as to the pneumonia, and agreed with me in thinking that, in so far as medication was concerned, it might be left now greatly to itself. We resolved to continue the constant poulticing to the chest, and address our treatment more particularly to the hiccough, which had now reached an alarming extent, and threatened, at no distant period, to kill our patient. Some of the remedies I had been employing received another trial—spirit of chloroform, bismuth, lime water, and cold soda water, &c.; ice could not be got. A large belladonna plaster was applied all night over the region of the stomach, and a dose of chlorodyne administered. If these remedies should fail, we agreed to apply a cantharides blister over the region of the stomach and diaphragm, dressing it with solution of morphia; if that also failed, to try the careful inhalation of chloroform, and to keep the patient under the influence of it for some hours, or longer if necessary.

14th. The patient had slept scarcely any; the hiccough was as bad as ever, and had been so all night. During the day several of the above-mentioned drugs were administered, and the blister applied, as agreed to at the consultation. The patient was now taking very little support, and what little he did swallow was almost immediately rejected by the belching and retching of the stomach, in connection with the violent and distressing contractions of the diaphragm, which were shaking not only the whole body, but the very bedstead, by their vehemence.

15th. Finding our patient in a very haggard and prostrate condition when I visited him this morning in company with my friend, Mr. Whitson, a medical student in his fourth year, I resolved to commence carefully, with his assistance, the inhalation of chlorform, as agreed to at the consultation with Dr. Bell, as the hiccough was continuing as bad ever, in spite of everything that had been done. But before doing so, weighing in my own mind the fact that this hiccough was in all probability produced by spasmodic contraction of the diaphragm, caused by the abnormal excitement or irritation of the phrenic nerve, and remembering the beneficial, almost miraculous, results of the subcutaneous injection of morphia in *nervous* complaints, such as convulsions, sciatica, lumbago, tic-douloureux, &c., I determined to give it a fair trial. I had with me a phial of the solution of muriate of morphia and Dr. Alex. Wood's syringe, by which I carefully injected ten minims of the solution under the skin over the intercostal muscles. I presume the arm might have done equally well. It will scarcely be believed, but the fact is, notwithstanding, that in a few minutes, as if by magic, *the hiccough stopped completely, and did not return.* The patient was left, of course, in a very weak and exhausted condition. I administered a dose of chlorodyne at bedtime.

16th. The patient had a good night, the first for more than a week, and was greatly refreshed. No return of the hiccough. The stomach now retained milk, small quantities of beef-tea, and a teaspoonful of brandy occasionally. Physical examination showed that the pneumonia was progressing favourable. The rusty expectoration gradually got less, and in a day or two lost its rusty colour; the pulse counted 80 beats per minute; tongue cleaning at edges, and more moist. In short, from this day the patient slowly, but decidedly, improved uninterruptedy, till at the end of three weeks from the commencement of his illness, he was able to resume his ordinary avocation, though complaining of being easily knocked up from want of strength.

Remarks.—It may be remarked by some that the disease in this case may have reached the crisis on the 15th, and that the hiccough might have given way without the subcutaneous injection of morphia. If so, it was a very remarkable coincidence that within a few minutes of the operation Nature should have interposed and stopped the hiccough. The patient, a most intelligent person, a teacher by profession, insists that there was no coincidence of crisis in the matter, and that he is quite satisfied that the injection of the morphia stopped the hiccough, and saved his life. I am of the same opinion.

Before the case above occurred I had not seen hiccough to any extent *in pneumonia*, and was not aware that it accompanied that disease *as a symptom*. A medical friend has informed me, however, that about a year ago he had in his practice a case of pneumonia very similar to the above, in which hiccough came on on the third or fourth day. All the usual remedies were given without any benefit, and the patient died, he tells me, *of hiccough*, and not of the pneumonia properly speaking. Of course the subcutaneous method of cure requires further confirmation; but I think the facts I have narrated, in connexion with the above case, warrant me in bringing the subject prominently before the profession.—*Lancet*, *Aug.* 21, 1869, *p.* 264.

27.—SUCCESSFUL CASE OF ARTIFICIAL RESPIRATION BY THE SYLVESTER METHOD.

By CHARLES MOORE JESSOP, Esq., Staff-Surgeon, Associate of King's College, London.

[The following interesting case occurred as Mr. Jessop was on his way to India, in 1864, in charge of troops, women, and children.]

On the 7th September (having been at sea for five weeks) a fine-grown and healthy-looking baby, three months old, was attacked with capillary bronchitis: it did well till the 10th, when a relapse occurred—the difficulty of breathing increased. The child, however, rallied in the course of the day, and between nine and ten the same evening appeared to be progressing favourably.

About a quarter to twelve I was called by the father, saying that the child was dead. I went down and found it lying in its mother's arms, apparently dead. It did not breathe, nor make any effort at inspiration; there was no pulse; the pupils were contracted and insensible to light; there was a slight flutter in the præcordial region.

At the rate of twenty or thirty times in a minute, I alternately raised and depressed the arms for about four or five minutes, when the pallor of the lips began to abate. With the aid of friction to the feet and legs, I continued the process till the lips were crimsoned and the breathing was re-established. I gave a half-ounce enema of gravy-soup and brandy, and directed the friction with oil to be extended to the stomach and chest at intervals. I left him breathing feebly, but regularly, and without apparent difficulty.

About one o'clock I was again called by the father, saying, "He really is dead this time, sir." I found the jaw had fallen; respiration had ceased; there was no pulse; and, but for the contracted state of the pupils, I should have said the child was dead. I commenced the same process as before, and fortunately with a similar result. I left, but came back before 2 a.m., when I learnt that the respiration had gradually diminished in rate and strength, and that no inspiration had occurred for some time.

For the *third* time, I adopted the Sylvester method of artificial respiration successfully; and again at the hours of three, four, five, half-past six, and, for the last time, about eight o'clock in the morning.

Thus, *within nine hours, this child, three months old*, but for the above method, *must have died any one of those eight times.*

The enema of gravy-soup and brandy was given after each of the first attacks: afterwards, every two hours.

Artificial respiration, after the third attack, was not employed for so long: about five o'clock I was able to procure hot water for a warm bath, so that as the day wore on the fear and danger of death diminished.

The enemata of gravy-soup were given three times a day with half a drachm of the syrup of iodide of iron, and his mother's milk instilled into his mouth. When he could nurse as usual the enemata were used only twice daily till the 22nd September, when they were discontinued. As cough was still present, the syrup of iron was given by the mouth twice a day.

On the 25th September aphthæ appeared—a few drops of ipecacuanha wine were added to the mixture.

On the 30th of the month all trace of his recent illness had disappeared, and medicine was discontinued.

He remained well for the rest of the voyage, and I left him at the end of November at Poona a fat and rosy-cheeked baby.

This was the mother's second child, her first having died in Ireland of bronchitis at the same age. The father, a sergeant of the 106th Regiment, was an old soldier of wiry constitution. The mother, a plump, fresh-coloured, but short-necked woman, was about twenty-five years of age.

There are three points of interest in the foregoing case:—

The diagnosis of death, and its application to the means of recovery, by

The treatment of suspended animation by the Sylvester method ; and

The theoretical value of the other treatment.

The Diagnosis of Death.—Among the enumerated signs of real death I have not seen mentioned that of the fully dilated pupil. For many years past it has always appeared to me to be a point worthy of note, having a direct influence on treatment. As far as my observation has gone, if a fully dilated pupil is found in connexion with the cessation of the respiration and the circulation, we may safely conclude that life is extinct, and that the process of artificial respiration will be futile.

In death beginning at the heart, it would appear to be the first fully expressed sign of death, as in cases of hemorrhage ; but in asthenia and apnœa it would appear to be the latest in its occurrence.

Had it not been for the contracted state of the pupils in the case just recorded, I should not now have the pleasure of bringing this case to notice, for it was on this sign alone that I relied for the hope I gave the mother of recovery.

If, therefore, I should be again called on to treat a case of suspended animation from any cause, I would first ascertain the condition of the pupils before adopting any means of recovery. If I found them contracted or only partially dilated, I should proceed with a full assurance of success ; but if, on the other hand, I found them fully dilated, my practice would be but tentative and for the satisfaction of the bystanders. A case of this kind occurred to me on board the same ship on the same voyage a few weeks later. A man fell down dead on the main-deck as the troops were sitting down to dinner. The occurrence took place close to the fore-hatch, so that no time was lost in commencing Dr. Sylvester's plan of treatment. The process was continued till dinners were over, though the absence of the "expiratory puff" showed that the man was stone-dead. At the post-mortem examination, fluid was found filling each of the three serous cavities of the chest ; also, an aneurism of the ascending aorta.

The Treatment of Suspended Animation.—The principle of the process for artificial respiration, introduced by Dr. Marshall Hall, consists in the alternate compression and expansion of one lung with movement of the heart from side to side. But in natural respiration, in inspiration the lungs, heart, and great vessels descend ; in expiration the lungs, heart, and great vessels ascend ; consequently Dr. Sylvester's method, which imitates the complete acts and effects of respiration, is to be preferred ; because, in the first place, it aids that diffusion of gases which takes place naturally in the lungs, for by the alternate dilation and contraction of the chest we endeavour to shift the stationary air to and fro in *both* lungs as in health, and so bring about gaseous exchange with the tidal air, averting "oxygen starvation and carbonic acid poisoning."

Secondly, It brings about the reflex action of the medulla oblongata, for the mucous membrane of the parts about the glottis is very sensitive to the least irritation, and the constant currents of fresh cold air, which are being sucked into the windpipe, stimulate the afferent nerves to the medulla oblongata, which in turn being stimulated gives rise to reflex action.

Thirdly, It "helps the heart to drive the blood the way that the heart propels it." The motion of the heart is dual. It has a thoracic or respiratory motion up and down, and a cardiac or circulatory motion forwards and outwards, backwards and inwards; the combined motion being a kind of circumduction. The supine position favours the passage of the blood through the heart, and reduces to a minimum the muscular force required to carry on the systemic circulation. Respiration tends to accelerate the flow of blood towards the heart, and brings the blood to the auricles by suction force through diminution of the atmospheric pressure on the walls of the chest. The blood, therefore, thus brought to the auricles enlarges them in all directions, and by its pressure, or the rolling over and over of its particles, stimulates the cardiac ganglia to reproduce the heart's intrinsic or erectile movement. This movement, favoured by the supine position, if once re-established, opens the tricuspid and mitral valves. In this manner then, the blood is driven the way that it should go. May we not suppose that the stimulation of the cardiac ganglia by the pressure or movement of the particles of the blood is analogous to the stimulation of the medulla oblongata by the passage of cold air over the afferent nerves near the glottis?

In the last place, this process assists in the production of heat. Every contraction of muscle is attended by oxidation, and the extensive muscular movement the upper part of the body is subjected to generates a large amount of heat, which must be conveyed by the veins towards the heart, and directly affect the cerebral, spinal, and sympathetic nerves and plexuses. Hence, then, when the circulatory and respiratory processes are at a standstill, we endeavour to set them again in motion. "Each," says Dr. Huxley, "consists essentially of a kind of pump, which distributes a fluid (aëriform in the one case, and liquid in the other) through a series of ramified distributing tubes to a system of cavities (capillaries or air-cells) the volume of the contents of which is greater than that of the tubes." Therefore, by this process, we pump into the lungs oxygen gas, and pump out carbonic acid gas; and we also pump into the heart blood to force, as it were, the cardiac ganglia to rouse themselves and open the flood-gates (tricuspid and mitral valves) to the stream of life.—*Edinburgh Medical Journal, Sept.*, 1869, *p.* 204.

28.—INOCULATION OF TUBERCLE.

The subject of the inoculation of tubercle has been examined carefully by Cohnheim and Fränkel. Their experiments were made with guinea-pigs, and they found that the introduction of tubercle from the human subject was followed, if the animal survived long enough, by the development of unmistakable miliary tubercle in the inoculated animals; results which agree with what may be called the positive experiments of Villemin.

They also found, however, that the same result—namely, the development of miliary tubercle—followed the introduction of other substances than tubercle.

Portions of apparently healthy organs, pieces of cancerous tumours, condylomata, sarcomata, pieces of blotting paper, charpie, vulcanised caoutchouc or guttapercha, when introduced into the peritoneal cavity, gave rise to a uniform result, namely, the development of tubercle in the animal subjected to the operation. These results are directly contradictory of Villemin's negative experiments, but agree with those of Dr. Sanderson and Dr. Wilson Fox, noticed in the number of the Journal for August, 1868.

The introduction of any of the substances which were employed was followed by peritonitis, and about one-half of the animals died from this cause in from one to four days after the operation—of course at too early a period to afford any evidence of tuberculosis. In those who survived, the peritonitis became circumscribed, and a tumour with a capsular envelope was formed. Within the capsule the foreign body was to be found, when charpie, caoutchouc, or similar substances had been used, but in no instance was it possible to recognise a trace of any of the portions of the organism which had been introduced, whether normal or pathological. The alteration which the portions of cancer, tubercle, &c., underwent, were so complete as to entirely prevent their recognition, even with the microscope. It is evident, according to the authors, since the systemic infection cannot be the direct result of the inoculation—a fact which is obvious in cases where caoutchouc, &c., have been introduced, and which is in the highest degree probable as regards the introduction of animal substances—that the cause of the phenomena must be sought elsewhere. The really effective agent is the dead and degenerated pus which is found, in every instance, as the result of the reactive inflammation after the introduction of the foreign bodies. This pus is the true foreign body, and its absorption into the economy is the cause of the subsequent pathological changes.—*Virchow's Archiv.*, Vol. xlv. p. 216.—*Dublin Quarterly Journal, May* 1869, *p.* 416.

29.—ON THE MODE OF ACTION AND USE OF BELLADONNA IN THE TREATMENT OF ASTHMA.

By M. Le Dr. See, Clinical Professor at the Hôpital de la Charité Paris; Professor of Therapeutics to the Faculty.

The remedies which are especially efficacious in the treatment of asthma are the *vascular* and *cardiac* agents; *i.e.* those which act either on the heart or on the muscular coat of the vessels; and among them we find three which have been principally applied to the treatment of this disease—belladonna, datura, and hyoscyamus.

Belladonna causes contraction of the muscular fibres of the arteries in such a way as to stimulate the flow of blood in the organs, and assist the functions of the latter, while other vascular remedies, which also affect the muscular coats of the vessels, act in a different manner; *e.g.* nicotine produces a lasting spasm, which only gives place to dilatation when the muscle has become tired out. Bromide of potassium causes a permanent contraction, and produces anæmia of the organs, while belladonna produces the opposite state—active congestion.

The classification which I have adopted indicates that the remedies are grouped according to their affinity for the organs which they are destined to modify and to heal.

I anticipate an objection here. How can we prescribe "vascular" remedies to cure a disease which depends not on any vascular affection, but on a disturbance of respiration? The answer is easy. It is necessary to employ vascular remedies, because the means of modifying respiration is to be found in the power to alter the pulmonary circulation. Further, the essential cause of asthma is an exaggerated excitability of the spinal cord, impressions on which provoke the reflex convulsion which constitutes the paroxysm; but belladonna acts upon the vessels of the cord, and diminishes its excitability by making its circulation active. Finally, by causing the pulmonary vessels to contract, belladonna produces congestion of the pulmonary mucous membrane, and helps the bronchial secretions, the expulsion of which is often so difficult in asthma.

Action on Respiration.—In order that nerves may perform their functions normally, they must be supplied with normal blood, rich in oxygen, and not charged with carbonic acid; without this the *nœud vital*, which is endowed with very great susceptibility, functions badly, and it is thus that dyspnœa is so easily produced in chlorotic subjects, whose blood, poor in globules, is not sufficiently charged with oxygen. This condition is especially indispensable to the respiratory nerves, which do not provoke contraction, except upon excitation of the spinal cord through the vagus, the nerve which receives sensory impressions and conveys them to the medulla, where they are transformed into motor impulses to the intercostal muscles and the diaphragm.

What does experimentation teach us on the subject? Section of the vagus does not abolish respiratory movements; the type of respiration changes, but the animal does not succumb. Respiration slackens, but the extent and energy of its movements are increased. If the vagus be *stimulated*, instead of being *divided*, the number of respirations is still not increased; the reverse is the case if it be paralysed. By stimulating this nerve, and by dividing it, we do not, then, suppress breathing, but only set up a different respiratory rhythm. In the same way, in the paroxysm of asthma, the respiratory rhythm is altered; so that, in treating an asthmatic patient, we must seek a remedy which can change the rhythm to a different type from that which prevails in the paroxysm.

Let us suppose that respiration has its ultimate source in the bulb, and that at the moment when the nervous fluid is about to excite the intercostal and respiratory nerves an obstacle occurs; well, the pneumogastric has the power of overcoming that obstacle, and the normal rhythm is preserved from interruption. Remedies which are prescribed with a view to action on the pneumogastric alter the rhythm. The asthmatic patient makes a convulsive inspiration, which is due to tetanic contraction of the inspiratory muscles—the diaphragm, the intercostals, and the auxiliaries. In belladonna and datura we have the means of quickening respiration; the inspirations then cease to be convulsive. Belladonna has the indisputable and direct effect of quickening respiration; and if by giving the asthmatic patient a dose of from 5 to 10 centigrammes (·78 to 1·56 grain) of extract of belladonna you can make his breathing quicker, you will benefit him much. This action is proved to occur by the following experiment:—Inject atropine into the carotid of a dog, and you will immediately observe acceleration of breathing. At the same time that belladonna increases the number of respirations, it changes their type and diminishes their depth. Belladonna, then is useful in the first stage of the paroxysm, and especially within the first three or four hours. In the second stage, breathing becomes slower from fatigue of the pneumogastrics, and we have now a renewed indication for the use of belladonna, which will quicken respiration again. It is for this reason that you must not prescribe opiates, as is often done by physicians who are called in during the attack, and will insist on soothing the patient at any cost. Opium acts inversely to belladonna; it diminishes the frequency of breathing to the damage of the patient.

Action on the Vessels.—Belladonna accelerates the action of the heart. This fact has been demonstrated by Bezold, who showed that if atropine be injected into the blood of an animal, the beats of the heart are sometimes doubled in number. This effect is due to paralysis of the terminal ends of the cardiac branches of the vagus. This kind of action is of no use to us in the case of asthma, but on the other hand, it can always help us when there is paralysis of the pneumogastrics and increased depression in the vessels. Belladonna, which makes the circulation more active, gives a new impulse to the blood when it is stagnating in the lungs, and the first effects of this are perceived in the relief of breathing.

Action on the Cord.—Bezold had formulated the following law:—Belladonna possesses the power of paralysing all the organic muscles, and especially the sphincters. But this law is false, for, merely to give one instance, belladonna dilates the pupil, but contracts the organic muscular fibres of the intestines. As to the muscular fibres of the bronchi, to which some have attributed the spasm of asthma, belladonna has no action upon them; besides which there is no need to concern ourselves with those muscles, as it is well understood, at the present day, that they play no part in the production of asthma.—*Practitioner, July* 1869, *p.* 1.

DISEASES OF THE ORGANS OF DIGESTION.

30.—THE USE OF THE SUBCUTANEOUS INJECTION OF MORPHIA IN DYSPEPSIA.

By Dr. T. CLIFFORD ALLBUTT, M.A., Cantab., F.L.S., Physician to the Leeds General Infirmary.

[We are apparently only at the commencement of our discoveries as to the value of morphia injected subcutaneously. The action of the drug is quite different in many cases, when given in this way, to what it is administered in the usual manner. Morphia given subcutaneously has some power profoundly to modify the nervous system in such a way that it must become a prominent remedial means in all disorders where the nervous system is mainly at fault.]

I was first led to prescribe morphia hypodermically in dyspepsia by observing the effects of its continued use in a lady whom I was treating by this method for rheumatic gout. To enter fully into her case would occupy a disproportionate part of my space. Suffice it to say that she is a lady of extreme nervous susceptibility, and that her dyspepsia was something far more than the dyspepsia of disordered secretions. The mucous membrane was extremely irritable, the appetite uncertain, and the bowels very capricious; so that a little worry, or a little alarm, or a little over-exertion, would at once take away the appetite, bring on diarrhœa, or cause sickness. There was evidence in fact, if I may use a somewhat inaccurate expression for brevity's sake, of extreme hyperæsthesia of the digestive mucous membrane. These symptoms were relieved from time to time by bismuth, steel, digestive pills with minute doses of opium, and the like. But it was not until she began to use the hypodermic method for the rheumatism that I discovered how happy an effect the morphia had upon her digestion. I began to find on the morning visit that the morphia of the evening before, so far from coating the tongue and depressing the appetite, cleaned the tongue and made her quite hungry. The days of her best appetite and most regular stomach and bowels were the days following the subcutaneous injection of a quarter of a grain of morphia. I was so struck with this that I determined to use the syringe in many of these unhappy nervous dyspeptics who are the plague of a doctor's consulting room, and the results have far exceeded my expectations, which, at first, were only moderate.

I will now try to show in what kind of dyspepsia I advise the subcutaneous use of morphia. In doing this I shall only cite cases as illustrations, and shall leave proof to my readers, who will have ample opportunities for trial. The incessant use of the unsatisfactory expression "atonic dyspepsia" in our books is an evidence of the strong general feeling we have that a large number of such cases depend less upon disordered organs than upon organs deficient in vigour. Very frequently however, we find not a mere passive debility, but a state of instability, of irritability, or of erethism, whichever word may best convey my meaning. And it is not widely enough known, that many cases of foul breath, thirst, and loaded tongue depend rather upon this nervous condition than upon "sluggish liver," or "deranged secretions." It is in these cases that the hypodermic use of morphia is so strikingly successful. Such forms of dyspepsia we know often occur in "hysterical" women, and I may say in passing that the morphia syringe, carefully used—and used carefully in a moral as well as in a medical sense—is by far the most potent means of remedy we have for "hysteria." Nothing so soon and so permanently relieves general irritabilities, instabilities, globus hystericus, capricious appetite, &c.

I do not apologise for this digression, for in the dyspepsia of these cases the syringe is most useful.

Miss ——, aged 28, had recently been disappointed in love. She had become moody, capricious, melancholic, and indolent. She refused her meals, and she lay mostly in bed. She suffered most painfully from globus, and frequently vomited her meals. She had begun to crave for and to take alcoholic stimulants. When I saw her I found, in addition, a restless, conscious manner; muddy complexion; soft, easily quickened pulse; coated tongue; uncertain bowels; humid abdomen; cold extremities and flushings of face and neck. She complained, of course, of the usual lassitude, sinkings, tremors, &c. Her temperature was normal in the evening, and the catamenia were but little wrong. She had been carefully treated for the various secretions, and had subsequently undergone careful and vigorous tonic treatment. I gave her an injection of a quarter of a grain of morphia the same evening. I scarcely dare describe what I believe to have been its effects, lest I should seem to emulate the virtues of Holloway's pills. I was amazed to see her walk with her sister into my consulting-room, the next morning, soon after breakfast, and declare that she was a new woman. From that time we used only the syringe (one-fourth of a grain every night), and she made a most satisfactory recovery,—the tongue cleaning, the appetite returning, the pulse steadying, and the *morale* improving. All desire for alcohol and all tendency to globus and vomiting disappeared with the first injection and did not return. I write about four months after her recovery. The injection was readily omitted when the health was restored, and no tendency to opium eating appeared. Indeed, one night, when the injection could not be given, she took a pill containing a quarter of a grain of morphia, and expressed great discontent next day with its disagreeable effects, which were the same as in a healthy person unaccustomed to the drug.

My space is, I see, rapidly diminishing. So without farther remark let me run on to another case of a kind which often baffles all treatment.

Mr. ——, a merchant, having somewhat large dealings of an anxious kind, but not under any especial pressure, consulted me for dyspepsia. He said, "I fear you can do nothing for me: I have seen" So-and-so and So-and-so (naming eminent London physicians), "and I know that I am a hopeless dyspeptic. Nothing does me good for any length of time." He was of a well-known type—spare, fretful, keen, hasty or absent in manner, dry skin, sallow face, pale compressed lips, stooping gait, and quick step. His tongue was too clean, and was red at the tip and edges. Pulse small and quick, usually 90 when at rest. Evening temperature normal. No suspicion of tubercle. His meals were a dread to him, instead of a hope, and bed at night was an actual terror. Here was a specimen of the true nervous dyspeptic; I need not describe him more in detail. Knowing that every conceivable remedy had been tried, I put him at once upon the subcutaneous injection of morphia. He had about one-fifth of a grain about three p.m. followed by a rest on the bed, and one-fifth of a grain again about half-past ten, followed by rest in bed. This he had for ten days, and his improvement was as pleasing to me as to himself. His afternoon injection soon began to make him positively hungry for his evening dinner, and his nights became quite "balmy." I then gave a quarter of a grain every night for a week or ten days longer, and had the pleasure of seeing him cured as to his dyspepsia, and more light-hearted than he had been for years. The recovery is as yet too recent for me to judge of its permanency.

I must pass by the dyspeptic with the flabby indented tongue —for whom, indeed, my experience would not lead me to try the morphia until steel and strychnine had utterly failed—and I must conclude with the following case of acute gastric catarrh :—

I was requested to meet my friend Mr. Atkinson, in the case of Mrs. ——, who was suffering from great disturbance of the stomach. We diagnosed "acute gastric catarrh," and I am pleased to find on consulting Dr. Wilson Fox's book, for the first time in reference to this case, as I now write, that our diagnosis is well borne out by his description of "(*a*) Acute indigestion and the 'embarras gastrique.'" Mrs. —— was a young married woman of about 25. She had suffered from several causes of depression, one of them being flooding after labour. There was decided epigastric tenderness, some pain after food, and constant vomiting. The vomiting occurred always after food, however small the quantity, and often independently of food, when considerable quantities of mucus and water were ejected. The tongue was thickly furred, and the breath offensive; there was decided evening fever (Fahr. 100°—101·5°), with quick weak pulse and some night-sweats. She complained much of thirst, and would, if permitted, swallow quantities of cold water. There was headache, lassitude, and extreme debility. Sleep was absent, or was dreamy and unrefreshing. The urine was scanty and thick, the bowels constipated. Mr. Atkinson had tried every dietary, nutritive enemata, and every kind of remedy (opium included), for several days without relief, and the symptoms became alarming. He gladly, therefore, agreed to try the morphia injection, and was as pleased with the result as I was. We injected a quarter of a grain in the evening with the effect of at once arresting the vomiting and procuring sleep. In this case the morphia injection had also the wonderful effect I have before mentioned, of creating appetite and cleaning the tongue.

The next day she began to retain milk and lime-water, the vomiting became rarer and rarer, and the ejected mucus far less copious. She had the injection repeated nightly for a week or ten days, and progressed with few drawbacks to convalescence. —*Practitioner, June*, 1869, *p.* 342.

31.—CONSTANT VOMITING AND ERUCTATIONS RELIEVED AT ONCE, AND PERMANENTLY, BY SULPHUROUS ACID.

Under the care of Dr. CHAS. R. DRYSDALE, at the Metropolitan Free Hospital.

Mrs. C., aged 36, seen first on May 25th, 1869. She has been suffering for the last month from vomiting of all her meals and constant eructations. The eructations are incessant, and during the time the patient was in consulting-room they occurred every minute or two. She brought up a good deal of frothy and sour clear fluid. To take a bismuth and hydrocyanic acid draught three times daily.

June 8th. No better. Ordered an effervescing draught thrice daily.

15th. No better; eructations as before, and continued vomiting of all her meals. Half a drachm of sulphurous acid in one ounce of water three times a day.

29th. The patient says that she is now quite well, and that after taking the last medicine for a day, the vomiting and eructations ceased.

July 6th. She has continued free from vomiting since.—*Lancet, July* 24, 1869, *p.* 120.

32.—TREATMENT OF TAPEWORM.

Dr. JOHAN RULLE, in an "Inaugural Dissertation," gives the following results, derived from the administration of certain components of the extract of male-fern to twenty-nine patients affected with tænia. 1. Not only the filicic acid, but also its decomposition-products, which are soluble in alcohol, will destroy tapeworms. 2. One must be very cautious in concluding that tænia are destroyed whilst in the intestinal canal, as the absence of the ova of tapeworms does not always indicate the non-existence of the parasites. 3. The precipitate thrown down on the addition of hydrochloric acid to extract of male-fern, previously treated with ammonia, is more active than filicic acid. Out of nine cases in which the acid alone was administered, there were two only in which the worm was completely expelled, while in two the agent was quite useless. With the precipitate, on the other hand, the worm was wholly discharged in four instances, and a complete negative result followed but once. 4. The pure filicic acid was administered in twenty-four instances without a change of diet, and in fifteen where the diet was changed: in one of these cases, the result was imperfect; and in a second, failed altogether. The hydrochloric acid precipitate failed in three instances in which the diet was unchanged; in nine other instances, in which the diet was restricted, there was not a single miscarriage. Hence the great importance of attending to the diet as a condition of success in the treatment of tapeworms. 5. Filicic acid given in the form of pill, removes tænia with the greatest certainty when it is combined with castor-oil. This increase in the action of the agent is to be ascribed, not to the solubility of the acid in the castor-oil, but rather to the drastic action of the latter remedy. 6. Drastics assist the cure of tapeworm, not only because they bring away the parasite, but also by their favouring the deeper penetration of the anthelmintic into the intestinal canal. 7. The acid is best administered in the impure form in pills, sixteen of which, containing 9·6 *grammes* of the remedy, should be made to serve for four doses. With two of these doses, castor-oil is to be combined. This treatment should be preceded by a restriction in diet.—Schmidt's *Jahrbücher*, No. 2, 1869.—*British Medical Journal, May* 22, 1869, *p.* 469.

33.—CASES OF HEPATIC DISEASE.

By Dr. J. D. Heaton, Physician to the Leeds General Infirmary.

Case 1.—*Discharge of Gall-stones from the Umbilicus: Recovery.* Margt. P., aged 39, was prematurely confined of a seven-months' child, still-born, five months before admission. During the early part of her pregnancy, she had an inflammation in the body, attended with much pain, for which leeches were applied. She seemed to recover from this, but subsequently (about two months before her confinement) an abscess formed at the navel, which was poulticed; it became very painful, and ultimately opened spontaneously, discharging much matter which was followed by the escape of some *gall-stones.* The opening at the navel did not close, but continued to discharge matter mingled with mucus and bile, and occasionally a gall-stone, the exit of which was accompanied with much pain and soreness. In all about eight or ten stones had been discharged up to the time of her admission; they were of about the size of a horse bean, and had flattened sides. She had never had jaundice. The bowels were generally in good order, and, except for the local inconvenience of the opening at the navel, she was now in pretty good health. The liver was not enlarged. The aperture was exactly at the umbilicus; the part around was inflamed; a ropy mucous fluid escaped, mingled with pus and bile.

The patient remained under observation about three months; poultices were applied, at first to the place; the bowels were gently regulated with aperients; and she was kept at rest. During this time several calculi were discharged similar to those which had been passed previously. After the escape of each stone, the body was sore and tender for a time. Ultimately no calculi escaped for a considerable time, the opening became very nearly completely closed, and was free from pain, and the patient feeling herself quite well, was discharged.

In this case, the mucous membrane of the gall-bladder had been inflamed, which condition had been due to the presence of gall-stones, perhaps favoured by the state of pregnancy. Ulceration of the mucous membrane resulted; and, the gall-bladder having become adherent to the abdominal walls, a fistulous communication between the seat of the ulcer and the umbilicus had been gradually formed. Thus a comparatively safe, though troublesome exit was provided for the concretions; and, upon their removal, the canal by which they escaped having contracted, the patient is restored to health; no serious injury to the biliary apparatus having resulted from the occurrence.

Case 2.—Hepatic Abscess Discharging into the Bronchial Tubes: Recovery.—Mary P., a middle aged woman, was admitted into the infirmary, whose previous history was obtained, as follows. She had been ill and under medical treatment for three months. She had, at the commencement of her illness, been treated for chronic hepatitis. Subsequently she came under the care of another practitioner (my informant), who then found complete dulness of the right side of the chest, which measured two inches more in circumference than the left side. She had intense pain, relieved only by large doses of morphia. Suddenly she expectorated a large quantity of pus; and, in the course of six hours, nearly a chamber-pot full of matter is said to have been expectorated. When this large discharge ceased, the expectoration which continued was tinged with bile. Great relief to the pain followed the escape of matter; but she was much prostrated; and she was sent to the infirmary that she might have better support than her own means would supply.

When she came under our observation, the more marked symptoms had subsided. There was still deficient resonance and obscure respiration in the right chest, and pain under the axilla, for which a blister was applied. The liver symptoms had subsided. She had no febrile symptoms, pulse feeble, tongue clean. She did not remain long in the infirmary, being anxious about her family, and determined to go home. Her treatment meanwhile was simply in aid of the spontaneous restoration which was in progress.

This case, though imperfectly recorded, is a well-marked example of abscess of the liver, opening by ulceration, into the right pleural cavity, and thence, by erosion of the substance of the lung (probably at a point adherent to the thoracic walls), into a bronchial tube by which the matter was discharged through the mouth. A direct communication with the interior of the liver was still for a time, maintained; and some bile, flowing from open biliary ducts, mingled with the sputa. No doubt this was a state of much danger; continued suppuration and progressive destruction of lung tissue being probable results. But, whilst under observation, the curative process seemed to be in the ascendant, and there was a fair prospect of restoration to health, more or less complete; a result very rarely obtained in cases of like nature.

Case 3.—*Hepatic Abscess opening into the Pericardium.*—In addition to the above I will notice briefly a case not under my own treatment, but of which I witnessed the post mortem examination; being that of a young woman who had been out of health for no long time with general symptoms, only rather obscurely pointing to the liver; when she was suddenly seized with pain in the chest, great agitation, great excitement, and disturbance of the heart's action, oppression of the breathing, and speedy death.

The post mortem examination disclosed a large abscess in the liver, which had penetrated the diaphragm, and opened into the pericardium, which was filled with pus, yellow from an intermixture of bile. So indeterminate had been the symptoms of the progress of this serious lesion that the real nature of the case had been unsuspected. The abscess of the liver was probably secondary, or metastatic, though the source of the original impurity of the blood of the portal vein was not apparent; and the large formation of matter had been effected without any of the subjective symptoms usually accompanying suppurative inflammation. Although the escape of the matter of an hepatic abscess into the thorax is not very uncommon, its discharge into the pericardium is of unusual occurrence, and is improbable *a priori.* In the Sydenham Society's *Translation of Frerichs,* I find that author quotes Rokitansky, Graves, and Fowler as having witnessed this result. The discharge of the matter into the shut sac of the pericardium is a mistaken direction of a spontaneous curative attempt which manifestly can only terminate in speedy destruction. —*British Med. Journal, July* 3, 1869, *p.* 8.

34.—DIAGNOSIS OF THE SEAT OF INTESTINAL OBSTRUCTION BY THE INJECTION OF FLUIDS.

In his posthumous work on intestinal obstruction, Dr. Brinton stated that the seat of intestinal obstruction can be readily ascertained by observing the amount of fluid which can be injected into the intestine.

If only a pint can be introduced, the stricture is not lower than the upper end of the rectum; if one and a half, or two or three pints can be introduced, the stricture is at a corresponding portion of the sigmoid flexure; a larger quantity points to the colon, but here the indications are less precise. In one instance, in which the stricture was seated at the upper part of the ascending colon, nine pints of fluid were introduced.

Dr. C. Hilton Fagge, in an elaborate paper on intestinal obstruction, draws attention to the fact that fluids may be injected so as to pass through a constriction, or beyond a tumour, while the intestinal contents may be unable to pass from above downwards. He quotes a case of disease in the sigmoid flexure, in which four pints of warm water were injected. Of this only a small portion returned, the greater part being retained, and no doubt adding injuriously to the accumulation already existing within the intestine.—*Guy's Hospital Reports*, 1869, *p.* 319.

Dr. Von Trautvetter has examined the question of how far fluids can be made to ascend in the intestine.

His experiments were made by injecting a solution of prussiate of potash, and by treating the intestine, when laid open afterwards, with a solution of perchloride of iron. A blue colour was produced, marking exactly the distance to which the injected fluid had penetrated. By comparative experiments on dead and living animals, and by the, as it appears to us, unjustifiable experiment of injecting a moribund patient, he arrived at the conclusion that the intestine during life is capable of receiving the same amount of fluid as after death. In the absence of obstruction from stricture, morbid growths, impacted fæces and the like, injections can be made to penetrate to the commencement of the colon, but for effecting this a long elastic tube is indispensable. —*Deutches Archiv., für Klinische Medicin*, Vol. iv. p. 476.—*Dublin Quarterly Journal, May* 1869, *p.* 426.

DISEASES OF THE URINARY ORGANS.

35.—REMARKS ON THE PROGNOSIS IN BRIGHT'S DISEASES.

By Dr. Austin Flint, (read at a Meeting of the New York County Medical Society.)

1. *The prognosis considered with reference to the different renal affections constituting Bright's diseases.*—[The term "Bright's

diseases" is used by Dr. Flint, implying that he does not hold to the doctrine which was advocated by Christison and Frerichs, whose works were published within a few years of Bright's discovery, that the various lesions of the kidney are different stages of the same disease. Few pathologists, at the present moment, uphold the correctness of the doctrine.]

It does not come within the scope of this paper to canvass the opinions of different pathologists, or to enter into a discussion of the question which I have raised; but, as preliminary to the first of the three aspects under which I propose to consider the prognosis, I shall simply enumerate several morbid conditions which, in the existing state of knowledge, it seems probable are the anatomical characters of different diseases.

1. Inflammation within the convoluted uriniferous tubes may be considered an individual disease pretty well established. It is too limited a view of the affection called, after Johnson, desquamative nephritis, and by Dickinson, tubal nephritis, to consider the inflammation as always acute. Doubtless here, as in other situations, the inflammation may be either acute, subacute, or chronic.

2. The morbid condition described by Bright, and called the "smooth white kidney," should, as it seems to me, for the present, be reckoned as an individual disease. The theory which attributes this condition to inflammation within the tubes is hardly so well established as to warrant its exclusion as a separate affection. Even admitting that it is an inflammatory and an intratubular affection, its anatomical characters seem to be sufficient to constitute it a distinct disease.

3. The fatty kidney appears to have been rather unceremoniously thrust out of the group of Bright's diseases by some pathologists, on the ground either that this anatomical condition is due to a fatty degeneration of inflammatory products, or that it is merely incidental to other morbid affections of the kidneys. These reasons must be regarded as resting on inference, not on demonstration; the characters, both gross and microscopical, of the fatty kidney are highly distinctive, and an analogous anatomical condition of a fellow-gland, the liver, is recognised as a distinct affection. Hence, as it seems to me, for the present, at least, the fatty kidney is entitled to an independent position among the Bright's diseases, admitting that this, as well as each of the other affections, does not invariably exist alone, but may be associated with other lesions.

4. That the affection known as the fibroid, the contracted or atrophied, and cirrhotic kidney, is to be regarded as holding a distinct place among Bright's diseases, is admitted by most

pathologists, although with regard to this affection, as well as with regard to its analogue, cirrhosis of the liver, there is room for discussion and difference of opinion respecting the morbid processes of which this lesion is the result.

5. Finally, no one doubts the individuality of the affection called the waxy, the lardaceous, or the amyloid kidney, notwithstanding the mooted questions concerning this morbid condition.

Here, then, are five renal affections which have claims to be recognised as distinct, constituting, collectively, with our present knowledge, the group of Bright's diseases.

Now, as regards prognosis, these different diseases are by no means on the same footing. What is true of one, respecting the probability or possibility of recovery, is not true of the others. Undoubtedly a simple inflammation of the uriniferous tubes may end, if indeed it do not generally end, in recovery, leaving the structure of the kidneys intact; and this result may be expected, be the inflammation acute, subacute, or chronic. But it is probable that, in certain cases, this affection leads to the second of the five diseases, namely, the smooth white kidney, and perhaps also to the third of the five diseases, namely, the fatty kidney. Does recovery from the two diseases last named ever take place? Our present knowledge does not enable us to answer this question positively. But we may assume it to be highly probable that, having progressed to a certain extent, the morbid process or processes, whether inflammatory or not, which these diseases involve, may cease, and retrogression take place, leaving at length the organs, if not intact, not damaged enough to compromise seriously their functional capacity. The fourth disease, namely, the contracted or cirrhotic kidney, must be regarded as involving a permanent lesion. It is hardly possible for recovery to take place without a persistent structural injury; but even this lesion may cease to be progressive, after a greater or less amount of damage, and recovery be possible in the same sense as recovery from tuberculous disease of the lungs is considered as having taken place, that is, the morbid processes cease, and there are no longer any symptoms of disease, but the functional capacity of the organs is more or less impaired. The fifth disease, namely, the waxy kidney, is of less practical importance than the other diseases, because it is so rare; but it is not certain that the lesion peculiar to this disease may not disappear. At all events, this affection, like the three preceding affections, may be non-progressive after it has reached a certain point, the kidneys remaining unsound, but nevertheless competent to perform their functions sufficiently for life and even health.

Relatively considered, the prognosis is by far the most favourable, if only the first of these different affections exist, and of the four remaining affections, the prognosis is the most unfavourable if the contracted or cirrhotic kidney be the existing disease. Here, then, is an illustration of the fact that diagnosis is an important prerequisite for prognosis. Now, is it practicable, with our present knowledge, to diagnosticate the first of these five diseases, and to differentiate from each other the four remaining diseases? To consider the diagnosis, severally, of these diseases, would lead me beyond the limits to which this paper must be restricted. It must suffice to say that, although in certain cases, the antecedent circumstances, the symptoms referable to the urine, together with other symptomatic phenomena, the age, and co-existing affections, warrant a discrimination with considerable confidence; yet, in not a small proportion of cases, the differential diagnosis, with the means at present available, cannot be made with positiveness. Then another question arises: assuming the existence of either the smooth white kidney, the fatty kidney, the contracted kidney, or the waxy kidney, is it practicable to determine, in individual cases, whether or not the amount of lesion is consistent, or otherwise, with the ability of the organs to perform their functions sufficiently to warrant, as the prognosis, a duration of life and comfortable health for an indefinite period? This question cannot be answered affirmatively. It must be admitted that, with the means of investigation now at our command, we cannot gauge, with anything like precision, the extent of damage which the kidneys have received.

[There can be no doubt that in a certain proportion of cases of Bright's disease recovery takes place. Many of these are simply tubal nephritis, but some are instances of arrest of progress of more serious forms of disease, in which case the changes of structure may be tolerated by the system or may be entirely removed. Out of 103 cases observed by the author of this paper, there were good grounds for the opinion that recovery ensued in 22.]

2. *The prognosis considered with reference to the symptoms and complications in Bright's diseases.*—It is a well known truth that Bright's diseases, existing antecedently to various affections, may determine the fatality of the latter, when, *per se*, they might be expected to end favorably. This is true of pneumonia, the continued fevers, &c. Pre-existing disease of the kidneys will serve to explain the occurrence of certain events of the clinical history, and a fatal termination in cases of intercurrent affections not dependent on the renal disease, but merely coincident with it.

How do coexisting structural affections of the heart affect the diagnosis in Bright's diseases? The pathological relations between Bright's diseases and structural affections of the heart, cannot be overlooked in answering this question. These relations have been open for discussion from the date of Bright's discovery to the present time. I must content myself with stating, in a few words, the views which appear to my mind most consistent with clinical facts. Simple hypertrophy of the left side of the heart, that is, hypertrophy not dependent on valvular lesions, is so extremely rare, exclusive of its occurrence in connection with renal disease, and is so frequent in this connection, that the association must be considered as involving a pathological relation. Again, hypertrophy of the heart dependent on valvular lesions being so frequent, and so often existing without renal disease, it is fair to conclude that, when simple hypertrophy is connected with renal disease, the hypertrophy is in the relation of a cause, not of an effect, of the renal disease. Assuming this view to be correct, it is not improbable, indeed it is probable, that the hypertrophy of the heart in this connection, as when it is an effect of valvular lesions, is compensatory or conservative. And if this be true, the co-existence of simple hypertrophy, to say the least, does not render the prognosis more unfavourable.

But in a certain proportion of cases, valvular lesions, with or without enlargement of the heart, are associated with renal disease. In view of their frequency, a certain allowance is to be made for mere coincidence in the association of these lesions with renal disease. Do these lesions ever result from renal disease? The affirmative to this question is not proven. Endocarditis is certainly not of frequent occurrence in Bright's diseases, nor is there ground for supposing that these diseases favour atheroma and calcification; and, exclusive of traumatic causes, these are the sources of valvular lesions. Assuming that endocarditis is sometimes an effect of renal disease, the duration of the latter is rarely sufficiently long for valvular lesions with enlargement of the heart to ensue, inasmuch as these are remote effects of endocarditis, as shown by their occurrence after acute articular rheumatism. On the other hand, considering the number of cases of valvular lesions, with enlargement of the heart, in which renal disease does not exist, it is doubtful whether the agency of the former in producing the latter is ever more than that of an auxiliary cause.

Finally, how is the prognosis affected by the co-existence of valvular lesions and enlargement of the heart with renal disease? In answer to this question, it may be said that the evils and danger which may belong to the cardiac lesions are added to those which belong to the renal disease. Valvular lesions in this connection, as when they exist alone, it is probable, are of importance, chiefly with reference to morbid effects after the heart has become dilated. Prior to this, they neither affect materially, nor are they affected by, the renal disease. When they have led to enlargement of the heart they may, as already stated, act as an auxiliary cause, increasing the disease of the kidneys ; and, on the other hand, in proportion as the powers of the system become impaired by the renal disease, the ability to bear up against the cardiac lesions is lessened, and the danger from the latter is thereby proportionately increased.

Passing from the complications to the symptoms in Bright's diseases, for the purpose of condensation I shall embody my remarks in a few propositions. My purpose in doing this will, I trust, be a sufficient apology for an appearance of dogmatism. The prognosis, as regards symptoms, has reference to danger in two directions, namely : 1, From uræmic phenomena, meaning by this phrase, as heretofore, especially coma and convulsions ; and, 2, Persistent and excessive dropsy, together with exhaustion.

Uræmic coma and convulsions are always to be considered as involving great immediate danger. Life may be destroyed within a few hours, and even within a few moments, from the occurrence of these symptomatic events. On the other hand, the patient may not only survive these events, but the recovery from the renal disease may be complete after their occurrence. Moreover, when the renal disease continues and progresses, the patient may survive repeated attacks of coma and convulsions ; the attacks may recur after long intervals, during which there may be an appearance of recovery, inclusive even of the disappearance of albumen and tubular casts from the urine. The collection of cases which I have lately analysed furnishes striking illustrations of the correctness of these statements.

Vomiting and purging are evidently in certain cases uræmic symptoms, and generally this can be determined by diagnostic circumstances which it would be out of place here to consider. If these symptoms be persistent, they betoken danger of coma and convulsions. They may also involve danger in the direction of innutrition and asthenia. I have known death to be attributable to the exhaustion produced by persistent vomiting in a case in which attacks of coma and convulsions with violent delirium failed to destroy life.

A great amount of dropsy by no means in itself involves an unfavourable prognosis. This occurs in cases which end in recovery. But in proportion as dropsy persists, or if it speedily return after having been removed by therapeutical measures, its import is ominous. It is the more unfavourable as a prognostic if it be associated with notable anæmia and general prostration.

Dropsy excessively disproportionate in certain situations, namely, the pleural cavities, the air-cells of the lungs, and the pericardium, may involve immediate danger to life from its mechanical effect. This is, of course, true of œdema of the glottis, which sometimes occurs when there is little or no anasarca. A disproportionate amount of peritoneal dropsy in general, denotes the co-existence of cirrhosis of the liver, and this renders the prognosis unfavourable. The absence of dropsy is no evidence against the existence of lesions which involve danger from uræmic phenomena.

The symptoms pertaining to the urine are generally considered by medical practitioners too exclusively with reference to diagnosis. Examinations of the urine afford important information respecting prognosis. Waiving the consideration of microscopical characters, especially of tubular casts (which as entering into the differentiation of the several Bright's diseases, are thus indirectly important with reference to prognosis), prognostics, as regards urinary changes, relate to albumen and urea. There is no definite or uniform relation between the presence of albumen in the urine and the uræmic phenomena. While an abundance of albumen is by no means inconsistent with the occurrence of uræmic phenomena, a small amount is no evidence against the liability to these phenomena; and uræmic coma and convulsions may occur when the urine is devoid of albumen. There is, however, a relation between the amount of albumen in the urine and general dropsy. As a rule, to which there are exceptions, albumen in the urine is abundant in proportion as the dropsy is great; and the disappearance of dropsy is rendered improbable by the continuance of albumen in the urine in large quantity. In conjunction with the absence of other symptoms denoting renal disease, the disappearance of albumen from the urine together with casts, constitutes evidence of recovery; it is, however, an important fact that both albumen and casts may disappear from the urine, after the occurrence of uræmic phenomena, and the urine be free from these morbid constituents for several weeks, when the recurrence of fatal coma and convulsions, preceded by the return of albumen and casts in the urine, render it probable that renal disease existed notwithstanding the absence, for a time, of its diagnostic criteria. I have reported a case exemplifying the points just stated.

3. *The prognosis considered with reference to the treatment in Bright's diseases.*—We have no specifics to arrest or retard the progress of Bright's diseases. As regards the use of medicines, there is perhaps room for the belief that diuretics and cathartics,

employed or continued injudiciously, not infrequently interfere with the objects of treatment now under consideration. To remove causes, if practicable, is of fundamental importance in the treatment of all diseases. But our knowledge of the etiology of Bright's diseases, excepting tubal nephritis, is singularly meagre. It is, however, of great importance to place patients, as far as possible, without the sphere of all appreciable morbific agencies. And it may be reasonably assumed that the progress of renal lesions will be most likely to be arrested, or if not arrested, their progress will be most retarded, by measures, medicinal and hygienic, which are the most effective in placing the different organs and functions of the body, and the organism as a whole, in the best possible condition.

But at this moment the most important point in the treatment of chronic Bright's diseases, with a view to arresting or retarding their progress, relates to climate. On this point, the facts contained in the late excellent work by Dickinson are very striking, and in their practical bearing they seem to me to be exceedingly valuable. Referring to Dickinson's work for full details, I will simply state that this author has brought together statistics showing the mortality from renal affections in different climates. The contrast in this respect between different climates is extraordinary. Comparing London and Paris with Bombay and Genoa, the proportion of deaths from renal disease to the total number of deaths in London, is 1 in 49, and in Paris 1 in 266; whereas, the proportion in Bombay is 1 in 2,800, and in Genoa, 1 in 4,303. Again at the hospital in Milan, dropsy with diseased kidneys occurred, on an average, once in 2,807 admissions; whereas, in St. Mary's Hospital, London, the proportion was 1 in 31, that is, the frequency in the latter, according to these figures, is one hundred times greater than in the former. Further statistics, derived from the reports of the British army in different quarters of the globe, show the proportion of deaths from renal disease to be notably greater in temperate than either tropical or cold climates. Facts offer to show that, in the frigid zone, renal affections are extremely rare. These facts warrant the expectation, in cases of chronic Bright's diseases occurring in temperate climates, that arrest of the diseases, or retardation of their progress, as well as increased and prolonged intolerance of them, may often be effected by a timely change of climate. Certainly these facts afford a stronger foundation for such an expectation than do facts relating to tuberculous disease of the lungs for expecting the same results from change of climate in cases of the latter disease. With reference to the prognosis under this aspect, it is vastly desirable to collect a sufficient number of cases showing the results of a change of climate in Bright's diseases. Facts show a notable difference in the mortality from these diseases in different situations in temperate latitudes. For instance, Paris and London offer a striking contrast. So that, changes of climate, not involving removal at great distances from country and friends, may affect materially the prognosis.—*New York Medical Journal, July* 1869, *p.* 337

36.—REMARKS ON THE TREATMENT OF DIABETES.

By Dr. F. W. Pavy, Senior Assistant Physician to, and Lecturer on Physiology at Guy's Hospital.

[The following short paper was elicited by a communication by Dr. Basham, on the treatment of diabetes by alkalies. Dr. Basham referred incidently to a case published by Dr. Pavy which had been treated by opium combined with bicarbonate of potash, as favouring his views of the use of alkalies. Dr. Pavy however, considers that the alkalies had nothing to do with the rapid arrest of the discharge of sugar that occurred.]

I know of no medical agent capable of exerting a controlling influence over the complaint like that exerted by opium. In common with others, I have employed alkalies and ammonia largely in diabetes, and am well familiar with the kind of effect to be looked for. I have been of opinion that they produce a slowly beneficial action in the complaint, but never have I observed any immediate effect of a marked nature that could be attributed solely to their influence. With opium, on the other hand, the effect is so striking, that there can be no question of its reality. In my communication to the Clinical Society, besides the case above alluded to, two others were mentioned, in both of which the sugar was removed—in the one instance by opium, and in the other by morphia. In these cases, there was no other agent administered. They were cases of the disease in middle-aged subjects. The sugar was reduced as far as it could be by a restricted diet; and then, under the influence of the morphia and opium, it was entirely removed.

There is also at the present time a patient at No. 1 bed in John ward, Guy's Hospital, a most instructive case bearing on the point in question. It is the same patient to whom I administered the ozonic ether without observing any beneficial effect, and whose case, in reference to this agent, I mentioned in the Lancet a few weeks ago. The man, a middle-aged person, was passing, under a restricted diet, about six pints of urine, containing upwards of three thousand grains of sugar, in the 24 hours. At first, after the ozonic ether had been discontinued, morphia was administered in gradually increasing doses, beginning with half a grain three times a day. The quantity of urine and sugar from day to day gradually declined, and, in the space of about three weeks, disappeared altogether; the quantity of morphia administered at this time being a grain and three-quarters three times a day. After a little while the morphia was taken off; and in a week's time the sugar began to reappear, and went on from day to day increasing. This state of things was allowed to continue for about a fortnight, when opium was given; and, under its influence, the sugar has again disappeared. I merely here allude to this case; the patient being still in the hospital, may be seen by any one desirous of doing so.

Of what service as a curative agent, opium, in larger doses than it has been customarily given, may prove in cases in general, I do not at present pretend to say. Much more extended observation is required before this point can be determined. Whatever may happen to be disclosed by subsequent experience, it cannot be denied, I think, that we have before us an important therapeutic fact. The woman whose case formed the basis of my communication to the Clinical Society has been seen by me from time to time up to as recently as a fortnight back. She has taken no opium or other kind of medicine since October last; has been living (as she did when under treatment) upon an ordinary mixed diet; and has been passing urine devoid of sugar. Her case, in fact, up to the present time, forms an example of a direct and perfect cure.—*British Medical Journal, May* 1, 1869, *p.* 398.

37.—EARLY SIGN OF NEPHRITIC IRRITATION.

Dr. Owen Rees has found that a valuable indication in the early stages of kidney disease may be derived from the presence in the urine of *blood-extractives*, which may be recognised before the appearance of albumen in that fluid. The escape of the extractives shows that a constant and important drain is going on from the blood, and is to be regarded as a warning of approaching albuminuria. The *blood-extractives* may be detected by the addition of tincture of galls to the urine, which immediately precipitates the extractive matters. After five or ten minutes, the earthy and potash salts will be thrown down by the spirit contained in the tincture, so that it is necessary to remember that the reaction produced by the extractives occurs immediately after the addition of the tincture.—*Guy's Hospital Reports*, Third Series, Vol. xiv., p. 431.—*Dublin Quarterly Journal, May*, 1869, *p.* 426.

38.—ON ALBUMEN IN THE URINE, SOMETIMES IN CONJUNCTION WITH THE COLOURING MATTER OF THE BLOOD, AS A CONSEQUENCE OF SURGICAL DISEASES AND OPERATIONS.

By Henry Lee, Esq., Surgeon to St. George's Hospital.

During the years 1837-8 I collected together several cases which occurred in the wards of St. George's Hospital, in which the urine was albuminous, but in which there was reason to believe that there was no disease of the kidneys. In most of these cases the presence of albumen was accounted for by the ascertained disease of the bladder or of the prostate gland. This, howevsr, was not invariably the case. One instance in particular occurred, which left a permanent impression upon my mind. A patient had albuminous urine, and in the absence of any ascertained disease of the bladder Sir B. Brodie diagnosed the affection as a disease of the kidney. An issue was ordered in the loins. The patient maintained that his back was sound, and that the disease was below, pointing to his perineum. Sir Benjamin told the patient that he must yield to his judgment upon the point. This the patient refused so to do, and backed his own opinion by leaving the hospital. What the result was in this case I had no means of ascertaining; but the constancy with which the man affirmed that the disease was not in his back led me to think whether, after all, he might not possibly have been right.

Many years after this I met in consultation, at Sir B. Brodie's, Dr. Owen Rees and the late Dr. Seth Thompson. The patient was an eminent and well-known engineer. He had albuminous urine. He was supposed to be labouring under disease of the kidney, and a most unfavourable opinion of his case was given. The patient went to Egypt, and returned apparently very much improved in health. He now worked night and day, and often retained his water for many consecutive hours. At the time when one of his greatest works was achieved he was seized with an attack of apoplexy, and died a few days afterwards. Upon a post-mortem examination. there was no disease of the kidney to account for the albumen in the urine, but a most remarkable condition of the right ureter was discovered. The ureter on this side was very much dilated throughout. About its centre was a hard knot, which, upon examination, was found to be caused by an intussusception of all the coats of the canal. At this part the ureter was not contracted; on the contrary, the little finger could be passed along it without disturbing the intussuscepted portion. The mucous membrane here was intensely vascular. It was no doubt from this congested knot that the albumen, which for many years had been present in the urine, was derived.

The post-mortem examination in this case was conducted by Mr. Charles Hawkins and myself.

During the last year I read before the Clinical society a paper in which I gave the details of a case in which a large quantity of albumen was habitually present in the urine. This patient had caries of one of the bones of the forearm and of one of the ribs. The case I regarded as having its origin in specific disease. Under specific treatment the affected bones were restored, and after a time the albumen entirely disappeared from the urine. When this case was read, some of the most eminent pathologists present were disposed to look upon the presence of albumen in the quantity described, as indicative of disease of the kidney. This disease they supposed must have been cured by the specific treatment. On the other hand, I was inclined to regard the presence of albumen in the water as a consequence of the disease which was going on in other parts of the patient's system.

Quite recently two cases have come under my care which have appeared to me to demonstrate that when the blood is contaminated in consequence of accident or disease, albuminous water may be the result, without any organic disease of the kidney. The albumen in such cases, together with the colouring matter of the blood, may escape in very considerable quantities.

Case 1.—W. R., aged 22, was admitted into St. George's Hospital, under my care, on the 25th of April, 1869, for varicocele.

On the 6th of May I performed the usual operation for that disease. There was some slight bleeding at the time.

The following day (May 7th) the skin between the needles had become greatly distended by the effusion of blood. The skin over the effused blood sloughed on the 8th, the pulse was 112, and the tongue furred. The next day the urine had assumed a dusky-brown colour.

May 10th. The urine was of the colour of decoction of sarsaparilla; it contained an abundant deposit, and was albuminous.

11th. The urine passed in the morning was almost black. That which was voided in the afternoon was "smoky." He was now better. Pulse 86; skin natural.

13th. The slough between the needles was separating. Urine still albuminous.

14th. The urine was now almost clear, and contained no albumen.

The wound healed readily; and the patient was discharged on the 2nd of June.

Dr. Beale was good enough to examine for me the urine passed in this case. He reported that "the black and almost opaque urine was of specific gravity 1030. It contained, in 1000 grs., 71 grs. of solid matter. The deposit consisted of triple phosphate and globules of urate of soda. The black colour was not due to blood-corpuscles, but to colouring matter adherent to very minute granules of urate diffused through the urine, but not in solution. When the urine was evaporated, the extract had the ordinary appearance, and exhibited no unusual colour whatever."

I had an opportunity of seeing this patient and examining his water during the third week in July. He was then in perfect health, and his urine quite natural and free from albumen.

Case 2.—A. C., aged 40, was admitted into St. George's Hospital on Jan. 2nd, 1869. Five years previously he had been wounded by a musket-ball in the lower part of the neck. The wound healed, and he resumed his duty at the expiration of seven weeks. After a short interval, however, several abscesses formed in the neighbourhood of the old cicatrix; these gradually destroyed the greater part of the soft tissues on the right side of the neck. No fresh abscess had, however, formed for the last four years, but during that time he had suffered much from what he called rheumatism. On Dec. 31st, while stretching his neck in shaving, he felt an unusual sensation. The next day there was a swelling at the part, which he supposed to be a boil. This swelling gradually increased; it pulsated uniformly over its whole surface, and the skin covering it became quite black. The common carotid was tied on Jan. 8th, 1869, and a drawing of it was made on the 11th.

My clinical clerk had tested the water in this case previous to the operation, and had found it free from albumen.

Jan. 13th. A drop or two of blood oozed through the skin covering the tumour, which was reduced in size, and had entirely ceased to pulsate.

14th. The urine was of a very dark colour, and very albuminous.

15th. Dr. Ogle, who was good enough to see the patient with me, reported that "the urine was very albuminous. It contained no casts of the uriniferous tubes. Its specific gravity was 1029. It contained no appreciable amount of sugar." Some puriform fluid, containing broken-down coagula, was discharged from the wound.

16th. The wound was looking well, and appeared to be healing.

A second drawing was made on the 13th of February, when there was very little discharge from the wound, which had nearly closed. The patient never, however, regained his general health. The albumen in the urine continued. He suffered much from pain in the chest and upper part of the abdomen. He gradually became much emaciated, and died. Unfortunately no post-mortem examination could be obtained.

Independently of the cases which have fallen under my own care, I have known of others in which, after a surgical operation or disease, the urine has become albuminous, and sometimes has remained so for a very considerable period. I have also been informed of two cases in which the urine at the same time became very dark-coloured, and was supposed to contain blood. The cases which I have given, although few in number, are, I think, sufficient to show that albumen in large quantities may be present in the urine as a secondary affection dependent upon disease in some distant part. Such an affection must be carefully distinguished from any local disease capable of producing albumen in the ureters, bladder, or urethra. In both classes of cases the albumen may be produced independent of any organic disease of the kidneys, and in both it may be mixed with the colouring matter of the blood. From the cases which have come under my notice I am inclined to believe that in the first class the colouring matter of the blood is found independent of any blood-corpuscles; and that in the second the colour depends upon the blood-globules themselves. All the cases which I have known in which the peculiar colour of the urine, to which I have drawn attention, has accompanied the secretion of albumen as a secondary affection, (independent of any disease of the kidney, and independent of any affection in the urinary channels themselves,) have been instances in which there was evidence, more or less distinct, of coagula having formed in some part of the vascular system. These coagula have been disintegrated and removed. The colouring matter of the blood has disappeared with the other portions of the coagula; and when we find this same colouring matter reappearing in a disintegrated form in the secretion of the kidneys, we are justified, I think, in concluding that the matter so eliminated formed part of the coagula which had been disintegrated, and removed in the course of the circulation.—*Lancet*, *Aug.* 21, 1869, *p.* 262.

SURGERY.

BONES, JOINTS, ETC.—AMPUTATIONS. FRACTURES, DISLOCATIONS.

39.—ON DISEASES OF THE JOINTS.

By Thomas Bryant, Esq., Assistant-Surgeon to Guy's Hospital.

Putting aside for the present disputed points of pathology, and for future consideration the subject of tumours involving joints, it may, in all truth, be stated that disease of a joint generally commences in one of two tissues, the osseous or the synovial, and that either an acute or chronic inflammation of the bone or synovial membrane is the origin of most joint diseases. It is true that, in the progress of any case, both tissues may become eventually involved, and when disorganisation of a joint has taken place, both bone and synovial membrane will be neccessarily affected; but the extent to which either tissue will be involved will depend greatly upon the seat of the original disease. When the disease begins in the synovial membrane and disorganisation of the joint follows, the articular cartilages may disappear, and the bones may be involved, but the disease will, in all probability, affect only their articular facets with the parts immediately beneath—it will rarely involve the deeper parts. But when the bones are the original seat of disease, and the inflammatory process has spread from these to the synovial membrane, and disorganisation of the joint has taken place, the chief pathological changes will be seen in the osseous tissue, and will involve either the whole or a part of the articular epiphysis, if not a portion of the shaft. In short, when disease commences in the synovial membrane and disorganisation of the joint follows, it is in that tissue the greatest change will be seen; and when it originates in the bones, it is there that the greatest pathological changes are to be witnessed. Under both circumstances the cartilage covering the articular facets will have disappeared, although in the affection of the bones the cartilages are shed more rapidly, for the articular cartilages derive most, if not all, of their nourishment through the bones, and, as a consequence, any perversion of nutrition and inflammatory changes of the bones at once show themselves in the cartilages.

Practically there is no such thing as a primary disease of the articular cartilages—no such thing as so-called ulceration of cartilage independent of disease of other tissues. When the cartilages undergo a change, that change is always secondary to some other affection; when of the synovial membrane, the change is slow and partial in its action; when of the bone, rapid and complete. It should, however, be remembered that disease in the synovial membrane of a joint cannot exist for any period, or be of any severity, without involving the ligaments with it is connected, or the cellular tissue with which it is surrounded. Nor can inflammatory disease exist for any time in the articular extremities of a bone without affecting more or less the periosteal membrane with which it is so intimately associated. Nevertheless, I believe that clinically it is important to bear in mind the distinct origin of the disease in one or other tissue, and that a correct treatment must rest upon our diagnosis. I hope to prove this in future papers.

Before proceeding to consider the changes the different tissues undergo from the inflammatory process, it will be well to ask the question, with a view to its solution, whether there be such a disease as strumous disease of a joint—strumous disease of the synovial membrane or of the bone.

If we were to answer this question according to custom, as indicated by the free application of the term to joint disease, I should unquestionably say that it was a common affection, for there are few chronic changes of a joint that are not so designated; indeed, it is rare to meet with any chronic affection of a joint in a delicate child which is not regarded by a medical practitioner as a strumous disease. I have often thought that the constant use of the phrase would lead any one to believe that term strumous disease had some definite meaning, that it conveyed some definite idea from the mind of its employer to those who heard it, that the affection so designated was of a special kind, and was to be recognised by special features, and that it possessed definite pathological characteristics. Yet it can hardly be said that such is practically the case; for if we look for the points of difference between the so-called strumous disease and the chronic inflammatory affection we shall fail to find them. They are not clinically to be distinguished. They are not practically to be separated. Indeed, I am more than satisfied that the so-called strumous disease of a joint is nothing more than a chronic inflammation of the bones or synovial membrane, or both; that the pathological changes in the affected tissues are such as are clearly traceable to a low form of inflammatory action, and that they differ in no single pathological point from the inflammatory changes found in other parts. It is true that such affections are of a low type, and in that respect they differ from other inflammatory actions of a more healthy character, but that they are nevertheless inflammatory there can be no doubt. Practically, therefore, it would be well to expunge this term, strumous disease of a joint, from our vocabulary; for its use certainly misleads by making the student believe that the term has a definite meaning when it has not, and by encouraging the idea that the disease to which it is applied has more a constitutional than a local origin, and is consequently incurable. Of this, however, I am quite sure, that so-called strumous disease of a joint is, as a rule, as curable as any other affection ; that it is as amenable to treatment as any other chronic inflammatory disease. In saying this, however, I do not dispute the fact, that, pathologically, we do at rare intervals find tubercular deposit in some of the tissues building up a joint. When present it is generally ound in the bone; but I must repeat again, what I wrote ten years ago in my work on diseases of the joints, that such preparations are to be regarded as pathological curiosities—they are so rare. They are discovered also accidentally, and are not clinically to be recognised by any characteristic features from other cases of chronic inflammation of the bone. It would be well, therefore, to give the term up in scientific discussion, or, if it be used at all, to use it in the same broad sense as the words tumours, rheumatism, and fever are now employed, as a broad general term that includes many affections and covers much ignorance.

On the Pathological Changes which take place in the Synovial Membrane from Inflammation.—In a pathological point of view, inflammation of the synovial membrane may show itself in two distinct ways—firstly, in change of function, and, secondly, in change of structure. The first change may take place without the second, but the change of structure necessarily includes an alteration in the function. We see this in every-day practice, for in the ordinary run of cases of so-called chronic or subacute synovitis, excess of secretion in a joint is the main symptom, and this secretion may be reabsorbed and leave no trace of disease behind. These cases may be regarded as examples of the first class of cases, in which a change of function is the most prominent point. As illustrations of the second class, in which change of structure is the main point of clinical as well as of pathological importance, the pulpy disease of the synovial membrane naturally presents itself. Between the two great classes of cases, however, there are doubtless many links—for example, in acute synovitis we have change of structure even to disorganisation more or less complete, and in chronic synovitis, frequently repeated, we have change of structure such as gradually passes into the pulpy synovial disease ; this term including all the cases of pulpy or gelatinous disease of the synovial membrane. It would thus appear that in acute inflammation of the synovial membrane we have pathologically a series of changes that are somewhat different from those seen in a chronic inflammation, and in a clinical point of view the same distinction is to be drawn. The acute form passes, it is true, into the chronic by imperceptible gradations, but the two classes of cases are, nevertheless, very distinct. Let us now consider what these changes are, and first of all with respect to acute inflammations. Now acute inflammation of a synovial membrane is clinically represented by increase of secretion, severe local pain, and heat with symptoms of surgical fever. Pathologically it is represented by what my notes of cases clearly illustrate—a more or less minute injection of the capillary vessels, passing on to a velvety appearance of the synovial surface, a flocculent surface, or one covered with fimbriated fringes of lymph. In the still more acute cases the synovial membrane may have disappeared by ulceration or sloughing, or have so softened down as to be destructible on the slightest touch. In such cases as these acute suppuration of the joint will probably be present, and the synovial membrane may show any one of the conditions already indicated, or it may have disappeared, pus and broken-up membrane alone remaining to indicate the local severity and the destructive nature of the affection.

In less acute cases other changes may be seen, although they are not less marked. In one instance, the notes of which are before me, it appeared as a local patch of capillary injection—an injection which was visible to the eye, and which was attended with a superficial granular change of structure in the cartilage with which it was connected. In another it showed itself by the effusion of a firm fibrinous layer of lymph over the surface of the synovial membrane and articular cartilage. This membrane could be raised from its bed and peeled off—not only off the synovial capsule, but also off the articular cartilage—and beneath this membrane fine radiating capillary vessels were clearly visible, passing from the margin of the articular cartilage towards the centre. In this case, after a section was made through the spot of injected membrane and cartilage down to the bone, the swollen layer of membrane passing over the cartilage was clearly visible, as well as the granular degeneration of the cartilage beneath ; for this membrane could be separated from its cartilaginous connexion by means of needles.

This case occurred in a child, but it seems to me to be enough to prove by means of pathology what anatomy has hitherto failed to settle—that a layer of membrane passes over the articular surface of articular cartilage. I have seen these changes more than once.

The changes that take place in the synovial membrane in subacute and chronic synovitis remain now to be noticed. They are essentially of the same pathological character as are those we have just been considering, but they differ in this great point—that the synovial membrane is not destroyed, but becomes changed. It becomes thickened in various degrees by the infiltration of inflammatory product within its walls and upon its surface. This thickening may be so great that the synovial membrane may be represented by a tissue an inch in diameter; but this will only be found in cases in which repeated attacks of inflammation have taken place, and many layers of lymph have been deposited upon and in the affected tissue. These layers may not be deposited rapidly one after another by consecutive attacks of chronic inflammatory action, for they may be the result of disease which has spread over many years, but they will always represent an inflammatory action of a chronic nature which has at uncertain intervals attacked the joint, and on each occasion left behind it pathological evidence of its presence by an inflammatory infiltration.

It is with such changes as these that all cases of the gelatiniform or gelatinous disease of the synovial membrane, as well as the pulpy disease of Sir B. Brodie, are unquestionably to be classed. Both are of the same nature pathologically and clinically—at least, all my own investigations have led me to this conclusion. Ten years ago, when writing upon the point, I suggested that such might be the case, but did not feel sufficiently certain to assert it. All experience since then has, however, led me to the conclusion, and I know of nothing that militates against the idea. In the present papers I shall therefore employ the word pulpy disease of the synovial membrane to designate the disease. It is short and as expressive as any other. It is likewise a term with which the profession is familiar.

The Clinical Features by which these Pathological Changes may be recognised.—It will have been remarked that, in all the pathological changes we have been describing, excess of secretion, or effusion into the joint and synovial membrane, invariably occurred. It may, moreover, have been observed that these changes were the earliest, or, at any rate, were very early, results of the inflammatory action. Clinically, therefore, the most marked symptom that characterises synovitis in any of its forms is enlargement of the joint, either from effusion into the articulation, thickening of the synovial membrane itself, or both conditions combined. In the superficial joints, such as the knee, elbow, ankle, wrist, all these changes are readily to be seen, and when seen, are readily recognised. In the deeper joints they are also present, and are to be made out on a careful clinical examination.

This is the main point I would wish to be remembered in connexion with this subject.

On the Pathological Changes the Articular Cartilages undergo from Disease.—The most important point the practical surgeon has to recognise when considering the pathology of the articular cartilages has reference to the fact that there is no primary disease of this structure, for pathological anatomy teaches us that all the changes that are to be found in it are secondary to some other affection, and in the generality of cases to disease in the articular extremities of the bones. There is no such thing, therefore, as primary "ulceration of the cartilages," and when the cartilages are diseased they are so from the extension of mischief from the bone beneath or from the synovial membrane about them.

Much has been written about diseases of the cartilages, under the idea that they were liable to special diseases; and much error in joint pathology has crept in as a result. The authority of great names, such as Brodie, Key, and others, has helped to encourage this idea. But modern investigation, as carried out by Redfern, Goodsir, and others, has corrected this erroneous notion, and an improved pathology has clearly shown that the diseases of the cartilages are due to diseases of other tissues.

When describing the results of my own investigations ten years since, I divided these affections into the fatty, the fibrous, and the granular degenerations, and nothing that has been observed since has led me to doubt the accuracy of this division; indeed, additional experience has confirmed me in its truth. I am not about to enter, however, in this place into a minute description of these different changes, for they are to be read elsewhere; but it will suffice for my present purpose to remind my readers that the fatty degeneration of the articular cartilages is found in joints that have been deprived of their natural functions from any cause—from non-use in the majority of cases, but in many from bad nutrition—that it is found in common with the same change in the bones or other tissues. This fatty degeneration is to be recognised with tolerable facility by the naked eye, for the cartilage, instead of possessing its natural white pearly aspect, will appear somewhat transparent; its surface, will probably present an undulating, unequal, although smooth surface; it will, when cut, feel softer than usual, and may be three or four times its natural thickness. At times it may even be pulped by firm pressure with the finger, and it may be separated from the bone with more than usual facility. Microscopically it will present also characteristic features. The natural cartilage corpuscles will have become changed into fat and granule cells in various degrees; the hyaline matrix will be filled with cavities, varying from the healthy standard to large cells. These cells will be filled with more or less of the elements of fatty degeneration, in which the healthy corpuscles will have changed into fat cells, and the hyaline matrix will have changed more or less into an irregular cellular fatty matrix. This fatty degeneration takes place in most joints that have not been used, but rarely from disease of the joint itself. When present in a joint that becomes the subject of inflammation, disorganisation of the articulation rapidly follows, for such a lowly organised degenerated tissue has no power of resisting disease, and when brought into contact with it rapidly disappears.

The Fibrous Degeneration of the Articular Cartilage is a disease of a peculiar character. I believe it to be associated with only one disease of a joint, and that is the so-called "chronic rheumatic arthritis." It is very gradual in its progress, and is not characterised by any definite symptoms. It is to be recognised pathologically in a joint in its earliest stage by the loss of the natural glistening aspect of the cartilage, the smooth surface of which disappears, and it looks rough. Small fissures next appear, involving more or less of its thickness, and sometimes these extend down to the bone. These fissures are, as a rule, thicker in the centre, and at times radiate outwards; the cartilage seems gradually to thin, and after a time to disappear, exposing the articular surface of the bone, which will probably have undergone the calcareous degeneration. Microscopically the chief change that is seen in this disease is the gradual alteration of the hyaline structure into fibre. The cartilage corpuscles at the first are found interspersed between these fibres, but at a later date these corpuscles will be seen to have changed into granules. At the last stage nothing but fibres may be found, and when this condition exists, the rapid disappearance of the structure altogether will not be far distant.

The Granular Degeneration of the Articular Cartilage is the most important affection of this tissue we have to study. It is the one most commonly found in joint affection, and seems to be the direct consequence of a perverted nutrition in the bone or synovial membrane, the result of disease in one or both of these structures. Although of a simple nature, it shows itself in many ways, and without microscopical investigation must have appeared unintelligible. In its different forms it has doubtless led good observers to describe it as an ulceration of cartilage, for under certain conditions the cartilage presents a worm-eaten excavated appearance, not unlike that which ulceration might produce.

The disease is essentially a granular degeneration, first of the natural cartilage cells which are imbedded in the hyaline matrix, and secondly, of the hyaline matrix itself. Let a cartilage cell undergo this granular degeneration, and the granules by accumulation and multiplication form a cavity in the hyaline matrix ; then let this cavity burst on the surface of the cartilage into the joint, and an excavation which can be seen by the naked eye becomes at once visible, and a so-called ulcer is produced. Let this change take place towards the margins of the articular cartilage and we find an explanation of Mr. Key's observations upon so called ulceration of this tissue in certain forms of inflammation of the synovial membrane of the joint. Let this change take place near the bones as a result of disease in the epiphyses, and we find an explanation of the general condition of the cartilages in the bulk of joint diseases; for when the bones entering into the formation of a joint are so affected as to interfere with the nutrition of the articular cartilages, the cartilage may either present the worm-eaten appearance all over or in part, or it may have been shed from its bony attachment, when it will be found to be lying upon the bone as a foreign body in the joint. In an early stage of disease, this granular degeneration may only be detected by a microscopical examination, although, when the bone is the cause, it will always be found to peel off its articular facet with unusual facility.

In synovitis also the surface of the cartilage in contact with the inflamed membrane will be found similarly involved. Should the disease be local, as is at times seen in cases of injury to an internal ligament, such as the ligamentum teres, the change in the cartilage will be local only, but when general, the whole surface of the cartilage may be involved. In acute disease acute degeneration follows, as daily practice gives good evidence.

On the Pathological Changes in the Bones the Result of Inflammation.—Inflammation of the articular extremities of a bone is a very common disease; it is probably the most common we have to deal with in connexion with joints, for it would appear to be the cause of most, if not all, of those cases of disease of the articulations which we find in children, and which have been described as strumous or scrofulous disease of a joint. Ten years ago, when describing the results of my investigation of this affection, I stated that "I cannot for one moment doubt that the majority of the cases which are described by surgeons as strumous or scrofulous disease of a joint and of the articular extremities of the bones, depend upon a chronic inflammation in the bone," and all the experience I have gained since has tended to confirm me in this opinion. I believed then, as I believe now, that the disease is in its origin and progress inflammatory, and that it is as curable as any other local affection. I am convinced that the presence of tubercular deposit in the bone is a very rare occurrence, and that, when present, it alters but little the natural progress of the disease, although it may render the case less amenable to treatment. It is important to bear this truth, if such it may be called, invariably in mind when examining or treating a case of disease of a joint, particularly when it is found in a so-called strumous or cachectic subject, for if we regard the disease as a constitutional one we are too apt to think that it is to be treated on general principles and to neglect the local means by which alone a good recovery is to be secured. For my own part, I would abolish the term strumous disease of a joint altogether. It is based on a wrong pathology, and unquestionably suggests a wrong treatment. Let the surgeon recognise the true inflammatory nature of the disease, and be convinced of its curability by local and general treatment. He will then surely be more successful in his practice, and better results by treatment on the expectant principle will unquestionably be obtained.

Let us now, then, proceed to inquire into the changes that the bone undergoes during this inflammatory or wrongly called strumous affection.

The most striking is probably the earliest, and that is the expansion of the articular extremity. In some cases the enlargement will be very great, and it is generally uniform. The articular extremity of the bone affected, and, indeed, the epiphyses of all the bones entering into the formation of the joint, will appear to be rounded and generally enlarged. Upon making a section of a bone thus affected it will be found softer than natural; it may probably be so soft as to allow a knife to divide it. It may even break or crush on firm pressure being made upon it. To the eye the section will appear more vascular than natural, the cancellated portions to be more cancellated, the cells to be enlarged, and the bony septa to radiate from the shaft in a broad palm-like fashion. The cells also will be found filled with a pinkish serum.

Should the disease continue, and the inflammation be of a healthy type, parts of the bone will appear denser and more indurated than the remainder. The cancelli will have been filled with inflammatory product that has organised, and will appear on section as a dense and apparently bloodless mass, surrounded by other vascular cancellated tissue. Should the inflammation be cf an unhealthy character diffused suppuration within the bone will take place, and death of the bone, wholly or in part, follow.

Under these circumstances, the disease will probably have become a genuine joint affection—that is, it will have extended to the synovial membrane of the joint, and have set up disease within its substance. This extension of disease will show itself by effusion within the joint, and by pulpy thickening of the synovial membrane and of the cellular tissue around the articulation. Up to this point the disease has been a local one, involving only the articular extremities of the bones, and has not attacked the proper joint structures; it appears also to be perfectly curable. But at this stage of the disease the articular cartilages will probably become affected; for when the inflammatory action has continued for any period, and has not shown any indication of subsidence, but, on the contrary, has either assumed an unhealthy character or has interfered with the nutrition of the articular lamella of bone upon which the cartilages rest, the articular cartilage will to a certainty undergo the granular degeneration upon its surface in apposition with the bone, became loosened from its attachment, and be thrown off or shed, or it may degenerate in patches, and present to the eye an irregular excavated surface. If the disease be slow, the cartilage will degenerate slowly, and be as slowly loosened from its osseous base. It will then be readily lifted off the bone by any instrument. If the disease be more rapid, the cartilage will be shed likewise more rapidly, when it will be found lying upon the bone as a foreign body in irregular patches, which, under the microscope, will appear to have undergone the granular degeneration.

When the disease is acute the cartilage may disappear altogether, having been shed from its osseous base and become rapidly degenerated.

The articulating surface of the bone during this time may appear in some cases only extra-vascular, as in inflammation; in others it may be rough, or so-called ulcerating; in a third class the articulating facets will have been shed wholly or in part. In another, pieces of necrosed bone involving more or less of the articular extremity of the bone will be seen. In another, an abscess will have made its way into the joint from the diseased articular extremity. But in all these conditions the cartilages will have disappeared and the joint become disorganised.—*Medical Times and Gazette, June* 12, 1869, *p.* 622.

40.—ON EXCISION OF THE KNEE.

By T. Holmes, Esq., Surgeon to St. George's Hospital; Surgeon-in-Chief to the Metropolitan Police.

[As Mr. Holmes has been quoted against the operation of excision of the knee, we think it right to give his own statement of opinion.]

I do not wish here to spend time upon controversial topics, which have, I regret to say, at times led to almost personal feeling; but I should not be stating the case fairly, if I did not say, with reference to the first of the three points above mentioned, that I believe excision to be a more severe operation than amputation, more immediately dangerous to life, and requiring a longer time for convalescence. I have repeated this opinion in several different publications, and have, strangely enough, been represented on this account as an opponent of the operation; the fact being that I have never willingly lost an opportunity of performing it. But, however impressed we may be with the advantages of an operation, that ought not to blind us to its severity, otherwise we shall be in danger of giving a very fallacious prognosis to our patients, and of exposing ourselves to constant disappointment and self-reproach. Far, indeed, from being an opponent of the operation, I am so sincere an admirer of it, that I believe it able to bear the truth to be told about it. I sincerely believe that it has, as practised hitherto, been more fatal than amputation; and I can see no reason whatever why it should under any circumstances be less fatal than that operation, it being in my judgment a proceeding of at least equal if not of greater severity. But even if I thought that excision would always continue to prove more fatal than amputation, I should still practise it, because I think its results, when it succeeds, are so good, that we are justified in running some extra risk to secure them.—*Dublin Quarterly Journal, Aug.* 1869, *p.* 172.

41.—DESCRIPTION OF AN IMPROVED SPLINT FOR THE LOWER EXTREMITIES.

By Dr. D. W. Williams, Bangor.

Having constructed an apparatus, or universal splint for the lower extremities, acting on quite a novel principle, I am induced to bring it before the notice of the profession. I was led to turn my attention to the subject from the difficulty often experienced in country practice with splints in common use, amongst which may be enumerated Liston's long splint for fracture of the femur (which cannot be too highly estimated in the hands of the experienced, possessing ordinary mechanical ingenuity, under favourable circumstances), owing, particularly in union practice, to paucity of room, and ill-constructed bedsteads, with beds and mattresses of anything but even surface. Also the less frequent visits, necessarily arising where the distance is considerable, place the patient in a position very unfavourable as compared with that of those living in towns, or enjoying the advantage of treatment in hospital, the inmates of which are always under the immediate supervision of the medical attendant; so that with the best-directed efforts, and proper application of splints, deformities will sometimes take place in country practice, in the hands even of the most expert and experienced.

Without in the remotest degree wishing to detract from the many ingenious contrivances for fractures of the lower extremities, I feel convinced that my splint, from its simplicity of action and universal adaptability, will obviate the necessity for any other form.

It is made of three pieces of deal board, 3½ feet long. The lower one, which I propose to call the *leg-rest*, is scooped out internally, for the thigh and leg to lie on smoothly; externally, it is flat, to rest evenly on the bed. Two side pieces, about five inches long, are glued on each side of the upper end of the leg-rest, forming a lunated crutch at their free extremity, completed by the free upper extremity of the leg-rest. This crutch is well padded with sponge, covered over with wash-leather tacked to the splint, which forms an easy resilient cushion to surround the upper part of the thigh, resting against the fold of the nates, and embracing the side of the perineum, the rami of ischium, and the pubes.

This is the most important part of the apparatus, and one for which I claim novelty of construction and action; not being aware of any other extending power but that of the perineal band from the pelvis, whereas in my apparatus the action is reversed, the perineum and pelvis forming the point of resistance from extension by screw action from the foot. Two mortises will be seen at the junction of the leg-rest and crutch-pieces, about two inches long, on each side, for the passage of a silk handkerchief or bandage to secure the upper part of the thigh well to the splint.

From these lateral *crutch-pieces* there are two side splints tapering off to the heel, but divided about the centre at the knee-joint, to allow of their independent action, and attached to the leg-rest, at either extremity, by hinges, which are convenient for unfolding to dress the limb in compound fractures, &c., or to allow of bandaging the limb to the leg-rest in very thin subjects. There are also two sets of mortises at the knee, on each side, for the passage of bandages to secure the limb for extension in cases of fracture of the leg. There is a long thin mortise extending from above the knee to nearly the crutch-piece on either side, measuring six or seven inches between the hinged parts, for the passage of three folds of bandage, sewn together six or seven inches wide, one end of which is first tacked below the slit on one side, passed through, over the front of the thigh, and through the slit on the other side, from within outwards, to be secured below by a few tacks, or brought round to the front again and there secured. Padded auxiliary splints may be found useful or necessary in fractures at either extremity of the femur, placed under this and the crutch bandage, and firmly secured.

There is at the extreme end a thick piece of oak board, placed transversely, below the centre of which a long wooden screw passes through a female screw, to be attached to the foot-board, which slides on the sides of a space of about twelve inches long, by two and three-quarters broad, sawn out of the leg-rest, to allow of any disparity in length of limb, and broad enough for the heel to move in freely.

The foot being secured by a few turns of bandage round the ankle and instep, cotton wadding having been first folded on the ankle and foot, the limb is fixed to the footboard, first by passing the bandage through the notches on each side near the heel, which prevents it from slipping upwards, and afterwards bandaging the foot securely to the board up to the toes. The crutch-bandage having been made secure, extension is made by steadily unscrewing the screw—rather a primitive, home-made contrivance, which could doubtless be improved upon, both as regards elegance and facility of application, by some of the London instrument makers. A thick board is placed transversely below the centre, eighteen inches in length by twelve in breadth, which prevents the possibility of any displacement, or rolling on the most uneven surface. Any extemporised piece of board would answer the purpose, so that it is not absolutely necessary it should be fixed to the splint, which makes it less portable. There are hinge joints between the heel and foot boards, to allow of its being folded into the splint for portability.

To recapitulate. I claim for the apparatus—

1st. Ease of application in the hands of the inexperienced, and those wanting in mechanical skill.

2nd. The even, regular, general support afforded by Macintyre's splint, or double inclined plane, together with extension, so that both limbs can be always compared as to length.

3rd. Very superior advantages in affording means of dressing in compound fractures and resection of knee-joint, without relaxing extending force.

4th. Nicely adjusted screw-extension power.

5th. Adaptation to any fracture, from hip-joint to ankle, to any length of *adult* limb, and to both sides.

6th. The very gradual, easy screw action, rendering extension in hip- and knee-joint diseases highly advantageous, preventing tension, and attrition of the inflamed articular surfaces, with the general and regular support the splint affords. The former on the principle inculcated first, I believe, by Paget and Prescott Hewett, and practised, by weights and pulleys, in the case of the Princess of Wales; the latter on the principle of *rest*, advocated by Scott, and more recently, in a most able and exhaustive manner, by Hilton.

7th. Aneurismal clamps may be fixed to any part of it.

8th. Subjects with excessively feeble circulation can be treated without the fear of sphacelus from tight bandaging, or indeed without any bandaging whatever, if in any way contra-indicated.

The thigh-piece is fitted with two lateral pads, made of soft swan's-down calico, stuffed with two layers of cotton wadding, joined together in the centre by one layer of the same material four or five inches wide, which is tacked to the floor of the leg-rest. The free edges of the lateral pads are made to project somewhat over the edges of the side splints, and loose, to allow of any soft material being placed between them and the splint, and for the bandages &c. to pass through the slits. The leg-piece is supplied with the same.

To conclude: shortening or any other deformity is rendered almost a matter of impossibility with ordinary care, thus depriving bonesetters, and their abettors, which are not a few, of the extreme felicity of chuckling at the practitioner's failure—a frequent result, however, of their own malpractice, but which, with accustomed proclivity for quackery in general, the public so readily ignores. I am not without hope that my humble efforts may assist, in a slight degree, to reduce deformities to *nil*, which, it cannot be denied, although often unavoidable, are standing opprobria to the qualified practitioner.—*Lancet*, *Aug.* 21, 1869, *p.* 265.

42.—CASE ILLUSTRATING THE ANTISEPTIC TREATMENT OF WOUNDS.

By E. R. Bickersteth, Esq., Surgeon to the Liverpool Royal Infirmary.

Aneurism of the carotid; Hunterian operation, with antiseptic catgut ligature, both ends being cut off; complete primary union within a week; cure.—William R., aged 32, was admitted into my wards on the 3rd of April, suffering severely from aneurism of the right carotid. It had originated near the bifurcation twelve months before, but had not enlarged materially, or caused any serious inconvenience, till three weeks before admission, when a sudden increase took place, due probably to rupture of the sac. When admitted, the tumour was the size of a large orange; it overlapped the angle and base of the jaw, and extended downwards to within an inch and a half of the top of the sternum. Its lateral dimensions were equally extensive; and internally the tumour encroached on the pharynx so much that the unfortunate patient was almost unable to swallow or to speak. He was continually expectorating his saliva, and was in such pain and distress as to be unable to lie down or sleep. His pulse was constantly above 100, and his countenance indicative of great distress.

Aconite, digitalis, and opium were severally administered, and alike failed to afford any relief; and as it was evident that the man had not many days to live unless relieved, I determined to tie the common carotid without delay. Even this measure afforded but slight prospect of cure, for symptoms indicative of perverted action in the brain had already set in. On the day before admission, his sight, previously good in both eyes, had almost gone from the right one; the pupil was dilated and and nearly insensible, and there was a slight divergent strabismus.

On the 6th of April I tied the common carotid, about an inch and a half above the sternum, with fine catgut, previously previously prepared with carbolic acid, according to the directions of Mr. Lister. The operation was more difficult and tedious than usual, owing to the limited space and to a peculiar arrangement of the blood-vessels. The aneurism-needle was, in the first instance, passed round an artery fully as large as, and exactly in the situation of the carotid trunk; and I was about to encircle it with the ligature, when I observed that its compression in no way influenced the pulsation in the aneurismal tumour. A little further examination and dissection then revealed the true carotid, which lay exactly in the same plane as, and parallel to, but outside, the vessel before denuded. It was very much enlarged, being as big as the forefinger between the second and third joint. Around this the ligature was safely carried, tied tight, and both ends cut short off. During the operation care was taken that all sponges and everything used were washed with carbolic lotion (one part to forty of water.) After all oozing of blood had ceased, the edges of the wound were brought together by several silver sutures, washed again with carbolic lotion, and neatly adjusted; and then a piece of lint, three folds in thickness, and large enough to overlap the line of incision at least two inches in every direction, thoroughly soaked in carbolic oil (one part in five of oil), was applied and carefully adjusted, so as to rest evenly on the irregular surface. Over this again a somewhat larger piece of lint, similarly prepared, was placed; and then upon this two thicknesses of gutta-percha tissue. Cotton wadding and a bandage completed the dressing.

It is unnecessary to give a daily report of the progress. It is sufficient to mention that each day the patient improved in condition and in comfort, and after the fourth day, was able to swallow with comparative ease; the pulse gradually declined in frequency, and the expression became one of comfort and thankfulness.

The local treatment consisted in maintaining, as far as practicable, absolute rest; but this was a matter of difficulty, for, owing to the encroachment of the tumour on the pharynx, the patient was harassed, as before the operation, with constant cough and desire to expectorate. Each day, the dressings, *except the under-fold of the lint*, were carefully removed. This under-fold was well smeared over with carbolic oil, and care taken to let a little of the oil get beneath its margins all round ; and then fresh lint soaked in the oil was put upon it ; gutta-percha, cotton-wool, and a bandage as before. Such was the daily routine. No serum, pus, or discharge of any kind escaped. On the seventh day I ventured to remove the under-fold of carbolic lint, taking care to let a quantity of carbolic oil run under it as I lifted it up. The entire line of incision appeared to have united by primary union ; there was not one drop of discharge. In fact, it looked exactly as I had left it when first covered up. Under cover of the oil, I then removed all the sutures ; and probably I might then have dispensed with any further dressing to the part, but I wished to be quite secure, and feared, if I did so, that the points of suture might inflame, and suppuration spread thence to the deeper parts of the recently healed wound. I therefore decided to reapply the carbolic dressing, as before, for a few days longer. Five days afterwards, I again removed the under-lint, and found every part so perfectly sound and firm that no further precaution was required. There was no swelling and no thickening of tissues ; nothing, indeed, except a simple linear cicatrix, such as must have occurred had the incision merely extended through the skin.

The consolidation and absorption of the aneurismal tumour progressed most satisfactorily. At the end of three weeks the patient was allowed to leave his bed. The sight of the right eye greatly improved, although the squint remained. He left the hospital on the 13th of April, cured.—*Lancet, May* 29, 1869, *p.* 743.

43.—ANTISEPTIC SURGERY.

By Thomas Keith, Esq., Edinburgh.

[The following was elicited in consequence of some incidental remarks of Dr. Morton and Dr. Campbell Black (of Glasgow) seeming to lead to the inference that Mr. Keith had no faith in the antiseptic treatment of wounds.]

From my first operation of ovariotomy in 1862, to my ninety-second one a fortnight ago, I have, more or less perfectly, used some antiseptic dressing. At first, bags of charcoal, sulphite of soda, sulphate of iron, or Condy's fluid were employed. In my twelfth case I began the use of the tar-bags. This admirable dressing I received from Mr. Wells, to whom I shall ever be indebted for much practical information, which has tended more than anything else to keep down my death-rate, and helped me to avoid the rocks on which I might otherwise have split. For nearly three years, along with Mr. Wells's dressing, I have in every case very freely used carbolic oil or the watery solution, both during the operation and in the after-treatment.

In the cure of other wounds, I now invariably follow Mr. Lister's method. Twice during the past month I have had occasion to operate for cancerous disease of the breast. In both cases the larger vessels were twisted, and numerous small oozing points were secured by carbolised catgut ligatures. Both wounds were dressed antiseptically, exactly as I have seen Mr. Lister do. In neither case was there a single drop of pus from first to last, and the patients were convalescent in a few days. I have also employed the catgut ligature on two occasions of very extensive adhesions of the omentum in ovariotomy, and also for sutures in closing the abdominal wound. I think I am only now beginning to realise what Mr. Lister's antiseptic method and his carbolised animal ligatures are yet to do for surgery.—*Lancet, Sep.* 25, 1869, *p.* 454.

44.—A CASE OF EXTREME CONSERVATIVE SURGERY.—A THUMB SAVED.

By Dr. V. Stone, Laurencekirk, N.B.

Three months ago, J. W., aged 15, was brought to me with his right thumb said to be trapped off. On examination, I found the thumb cut, or rather crushed through, at the metacarpo-phalangeal joint, and hanging quite loose, a piece of integument half an inch broad alone keeping it from being completely separated from the hand. The injury had been caused by the boy, who was unharnessing a horse and cart, letting the whole weight of the cart fall down upon his thumb, which was between an iron bar and chain.

Of course, the first thing thought of, and probably, according to all rule, the proper thing to do, was to amputate; but I was deterred from this by two things—viz., the boy's distance from home, and the fact of not having suitable instruments by me (it was in the country). I proceeded to remove some loose small particles of bones, and clean the wound; then, having placed the bones in proper position, and replaced the skin, I secured the latter by three stitches of stout silver wire through the palmar side, and applied a water dressing with a light bandage to keep all secure. I thought of amputating the thumb next morning, and proceeded to the patient's home prepared for doing so, but on removing the dressings, I was so much struck with the appearance of the wound (which looked remarkably well, considering the injury), that, on the boy telling me that he had little or no pain, I made up my mind to delay for a little time, and see how things would go on. I again applied water dressing, with the addition of a little Condy, and ordered it to be changed twice a day, taking care that the parts should be kept in good position. Two days afterwards, the wound still looking healthy, I continued the Condy dressing, watching carefully for indications of anything going wrong; however, nothing appeared, and with the exception of a slight oozing at the lowest point of the wound, which I had left open to allow anything to drain off, it promised to heal quickly. At the end of a week I applied a thin pasteboard splint to the back of the thumb, over the sound piece of skin, to keep the bone from being disturbed. The Condy was still being applied. In another week—that is about a fortnight after the accident—the wound was quite healed. I then very slightly flexed the thumb, so that it might be in as useful a position as possible, and so bound it up that it was protected from movement or injury till the bone was firmly united.

At the end of a month one would have seen very little the matter with the thumb, as far as appearance went, and in two months' time the boy had a very useful hand, and the thumb, though still stiff at the metacarpo-phalangeal joint, capable of a considerable amount of motion (for, from practice, the mobility of the other joints seemed to increase), and a very valuable opponent to the fingers.

I saw the boy the other day, and he does all his work (that of a farm servant) with comfort, holding the plough, and grasping anything quite well. If this lad had lost his thumb, he would have been incapacitated from many kinds of work which he now manages with ease.

This case is, I think, a warning how careful we ought be in coming to a conclusion when there is a question of amputation of the thumb or fingers; for I have no hesitation in saying that, in nine cases out of ten, a thumb or finger is removed for an injury like the one described—it seems almost done already, only a little finishing off required—but give nature a fair chance and a little assistance, and the result is sometimes astonishing. Again, the question of amputation in the case of an injury of this description to a thumb or finger is removed from all comparison with that in a case of a similar injury on a larger scale—*e.g.*, that is, at the wrist or ankle—for in the former case the risk of constitutional effects is comparatively trifling, whereas in the latter, it is a very important element in the consideration of the question. A word, before I finish, as to the dressing. I attribute the absence of gangrene or a serious amount of suppuration entirely to the Condy's fluid used, which I think quite as good as carbolic acid and much more pleasant, the smell of the latter being almost insufferable to some patients. The action of both is about the same, and I see no reason for preferring the acid.—*Med. Times and Gaz.*, *Aug.* 14, 1869, *p.* 189.

45.—CASE OF SPINA BIFIDA SUCCESSFULLY TREATED BY LIGATURE.

By Dr. Edward Sidebottom, Mottram-in-Longdendale, Cheshire.

I was summoned on the 8th September, 1866, to attend Mrs. D., of Hollingworth, in her third confinement, who, after a long and tedious labour, was delivered of a fine full-grown male child, about the usual size and weight, apparently healthy and strong. I soon discovered that the infant was suffering from bifid spine in the lumbar region, the tumour being about the size of an orange, tense, fluctuating, and of a pale-purple colour.

I made known to the parents the danger attending such cases, and suggested that I might have resort to some operation for the removal of the tumour, or try ligature. I came to the conclusion to adopt the latter course; and in two days after its birth I placed a ligature of silk thread round the neck of the tumour, tightening the ligature only slightly. The following day I passed another (also of silk thread), without removing the first. This appeared to produce a good deal of irritation, causing several clonic convulsive attacks for several hours during the day, but which passed off in the evening. The next day I passed a third ligature (silk thread), not disturbing the two former ones, and using more constriction,—still without causing more convulsions, but leaving the child fretful. The three ligatures were all kept on until the tumour sloughed off, which did not happen for three weeks, leaving only a very small wound, over which I applied a piece of dry lint, using gentle pressure. In three days the wound had perfectly healed, leaving the child's lower extremities partially paralysed. After a few days cold water was applied by means of a sponge along the whole course of the spine, daily, with marked benefit, the paralysis disappearing by the end of three months.

The reason I have not reported this case sooner is simply that I might watch my little patient for some time to see if any new symptoms would develop themselves; but now that three years have elapsed I consider him out of danger. The little fellow is strong and healthy, and can run about as well as any boy of his age. In the course of my obstetric practice I have had many cases of spina bifida, in some of which I have used the remedies generally recommended, such as support by trusses and bandages, and puncturing the tumour. Others I have left to nature, some of which lived a few months and one five years. But I must confess that for many years I have had the idea that ligaturing the tumour in certain cases might be of service. I have often mentioned it to many of my medical friends, from whom, however, I have met with but poor encouragement. But the nearly always unfavourable result of repeated puncturing, pressure, &c., and in this case the child being well nourished and strong, led me to adopt this plan of treatment, which, I am happy to say, has proved a perfect success. Foresters in the first instance, and Benj. Bell more recently, advised the application of ligatures round the base of the sac, provided the disease be local, and a mere distension by fluid in consequence of the imperforation of the bones, and not a disease of the spinal marrow or membranes, and it be not complicated. It does not appear that either of them tried it. Erichsen (vol. ii.. p. 215) says he has "never known any but a fatal result follow the removal of these tumours by ligature, scissors, or knife." Gross (vol. ii., p. 188) speaks equally discouragingly of the results, and I cannot find a case on record which has been treated successfully by this method. Dr. Nevins mentioned, at the Liverpool Pathological Society, in 1850, three cases in which puncture had been tried. One case was cured, the gentleman being then forty years of age ; the second died ; and the third was quite well at the end of three or four months, with the sac contracted. Dr. Hana has related a case in which spontaneous rupture of the sac took place after measles, and the child recovered. Cases have been cured by puncture followed by injection of iodine, as proposed by Dr. Brainerd. The present case was doubtless one in which the spinal cord had no, or only slight, connexion with the sac. Ollivier states that when the disease is not complicated with hydrocephalus, he has generally found the spinal marrow traversing the sac unaltered ; but if coexistent with hydrocephalus, or if the canal of the spinal marrow be distended with fluid, the cord may be flattened out, as it were, so as to apparently line the sac, The gradual compression by the tightening of the ligatures may have contributed a little to the favourable result in this case, and should another opportunity present itself to me I shall not hesitate to adopt the same course.—*Lancet, Sept.* 25, 1869, *p.* 433.

46.—ON THE TREATMENT OF CARIES OF THE SPINE.

By Bernard E. Brodhurst, Esq., Lecturer on Orthopædic Surgery at St. George's Hospital.

The *treatment* of disease of the spine does not differ materially from that which is indicated for scrofulous joints generally—namely, rest of the part affected.

A limb may be kept at rest by means of a suitable splint, and when the joint is thus secured, the patient can move about without fear of injury, so long as the limb is not used. It is not so, however, with the spine. Only the posterior surface of the spine can be efficiently supported, and, therefore the trunk cannot be perfectly fixed, and friction of the opposed surfaces of the carious bodies of the vertebræ prevented, except in the recumbent posture. This is the position, then, which should be constantly observed in disease of the spine. But this is not alone sufficient, for it is required to keep the trunk motionless, so that friction of the diseased surfaces shall be avoided. This can only be effected by means of a well-adapted splint, which shall grasp the pelvis and shoulders, and if necessary the neck and occiput. As a further precaution, the mattress on which the patient lies may be slightly hollowed to receive the splint. The most convenient couch for this purpose is a double inclined plane, by means of which the shoulders and knees may be gently raised or lowered at pleasure. Such movements add greatly to the comfort of the patient.

The supine position is preferable to the prone position, for it can be continued longer without movement, and is, therefore, more favourable to anchylosis. But whatever the posture may be, absolute rest in the recumbent position is an undoubted necessity. Professor Pirrie has put this point well. He says: "Rest of the diseased parts and the recumbent position, whether the body be prone or supine, are of the utmost importance from the very commencement of the disease, until a cure is effected by anchylosis."

The importance of this fact—rest in the recumbént position—cannot be too much insisted on. Without it, all other treatment is useless; but with it, I have never known an abscess to form. The time which is required for this absolute rest depends on the duration of disease; probably eight or ten months may be sufficient at an early period; but the necessary time will increase in proportion as disease has advanced. Without rest in the recumbent position, anchylosis can never take place.

Anchylosis, then, is the cure to be effected. And when this has taken place, a portable instrument may be worn to support the spine and remove the weight of the head and shoulders. Now that the upright position is again assumed, two incurvations of the spine will be observed—one above and the other below the seat of disease. These are essential for the equilibrium of the body; and they can only be formed after anchylosis has taken place. Thus these curves become proofs that anchylosis is more or less complete.

There is a spurious as well as a true anchylosis however; and this consists of ossific union in the course of the posterior surface of the spine, which leaves the spaces of the bodies gaping. This form of union is prompted by the prone couch ; it is slender, and liable at any moment to yield.

When unfortunately, and as the result of motion and increased irritation, pus accumulates in such quantities that an abscess shows itself externally, whether in the groin, the loin, or elsewhere, it should never be allowed to break ; but it should be opened when evacuation of the contents becomes absolutely necessary, through a small valvular opening. And thus tension may be removed by the withdrawal of a small quantity of matter, when the opening may be again closed. This operation may be repeated as it becomes necessary. Again, the contents of the sac may be evacuated, and a solution of carbolic acid may be injected. I prefer the latter mode of treatment ; for the pus is then removed instead of being absorbed, and necessarily less danger attaches to such a course. Without motion, as has already been said, the abscess would not have formed. If motion be allowed after the contents of the abscess have been evacuated, it will again fill. Therefore, whether before the formation of the abscess or after its evacuation, the rule for our guidance in these cases is one and indispensable—rest in the recumbent position.—*Lancet, July* 31, 1869, *p.* 154.

47.—A METHOD OF MAKING THE INTERRUPTED SUTURE BY MEANS OF FINE SEWING NEEDLES.

By Dr. J. Lamprey, Surgeon 67th Regt.

Incised wounds, especially of the face and head, frequently claim the attention of the military surgeon, as soldiers, who are not less inclined to be pugnacious than civilians when intoxicated, very often, in their drunken brawls, receive wounds of so formidable a character that it is necessary to resort to sutures to keep the edges of the wounds in position. The kind of suture I hitherto had recourse to was made with the ordinary suture needle and silk thread, and this is perhaps still generally used by surgeons, notwithstanding the investigations of Sir J. Y. Simpson, who has pointed out the advantages of metallic wire over silk, or other organic materials for such a purpose.

It struck me that the ordinary suture needle, which is also required in using fine metallic wire, and a very formidable weapon in its way, capable of making a considerable wound and giving rise to severe pain, might be dispensed with by using the finest sewing needles, and making them serve the same purpose as the wire or thread, in the manner suggested by the twisted suture, but with this difference, that instead of inserting the needles at the distance of half an inch or so from the edges of the wound, if I inserted them quite close to the margin of the edges and passed them through the cutis alone, without touching the deeper tissues, I could keep the edges of the wound in close coaptation sufficiently long to allow of immediate union taking place.

Accordingly, on the first occurrence of a case of incised wound, I inserted a fine needle, of the kind used in sewing cambric, through the margins of both edges of the wound, and bringing them together, I secured them in that position by passing a single noose of ligature silk from one extremity of the needle to the other, and taking care to avoid unnecessary pressure or constriction. At a distance of about three-eighths of an inch I inserted a second needle, in a similar manner, and noosed it also, and again a third needle, and so on throughout the whole extent of the wound. I then removed by means of the cutting pliers both ends of the needles, merely allowing an eighth of an inch of the needle to project above and below the wound.

Before inserting the needles, I applied a solution of carbolic acid diluted to 1-40 to the open wound, and when they were inserted I applied lint wet in the same solution, and covered all with a piece of gutta percha tissue. On the following day I removed the external dressing and withdrew the needles carefully, so as not to disturb the noose of silk thread which acted as a support to the recent agglutinating lymph holding the edges of the wound together. I allowed all to be exposed to the air by applying no further dressing, and in a few days, the nooses of silk thread being quite superficial fell off, leaving the smallest trace of a cicatrix behind. No discharge of pus or ulceration followed this proceeding. I have recently had some extensive cutaneous wounds, one of them a large scalp wound treated in this way, and the results were so satisfactory, that I have no hesitation in treating all similar wounds in the same manner.

The advantages of this mode of treatment appear to be as follows:—

1. The fine needles make the smallest possible wound.
2. They are inserted and remain so, thus causing a minimum of pain.
3. Their presence causes no irritation, consequently there is no secretion of pus or ulceration.
4. They are much more easily and expeditiously applied than other modes of making suture.

I prefer moving the needles on the following day, though if necessary they could be retained longer, but once immediate union is established they are no longer required, and should be removed at once. This removal is much facilitated by using only the pointed extremities of the needles, owing to their taper form, and with this view, I now only allow so much of the needle to project on the opposite side of the wound as will permit of the easy application of the noozing thread. I have also observed, that the longer the needle remains in the wound the facility of removing it becomes less, as the oxidization of the needle increases its size, and roughens it. Still a little rotatory movement will enable it to be extracted by the forceps quite easily.

Having seen so much benefit derived from the use of carbolic acid, I apply it in all cases to such wounds in the manner stated, as I consider it not only has valuable antiseptic properties but also prevents the formation of pus, and as it could not be applied to wounds kept together by adhesive plaster, these sutures are necessary.

From what I have observed in this mode of applying sutures to wounds of a superficial character, I should have no hesitation in adopting the same method of bringing together the flaps in cases of amputation, using if necessary, a stronger needle, and inserting it a little further from the margin, and using fine iron wire in lieu of ligature silk.—*Medical Press and Circular, May* 19, 1869, *p.* 412.

48.—ON A NEW METHOD OF USING NEEDLES IN THE OPERATION FOR HARELIP.

By Lawson Tait, Esq., Wakefield.

I venture to bring before the notice of practical surgeons an improvement in this operation, which I believe to be one of importance. It is an operation which is performed principally for æsthetic reasons, and it is frequently married in this respect by the ungainly scars which are left by the needles when used in the ordinary way; in fact, I have not yet seen a case in which this defect has not been marked. What I propose is, that instead of two or more needles being introduced transversely through the flaps, they should be used in this manner: Having made what incisions he deems requisite for the operation (and I may here say that I have abandoned all the fancy manipulations for the old-fashioned straight incisions, removing plenty of tissue), the surgeon is to introduce two ordinary seampstress's needles, armed with a few inches of silver-wire doubled, through the flaps, in the form of a St. Andrew's cross; the point of each needle is to be introduced through the mucous membrane of the lip, about half an inch from the edge of the flap, and brought out at the middle of the incision, then introduced into the other flap at the point opposite, and brought out at the root of the ala of the nose. The needles cross in the middle of the wound. The flaps are to be carefully adjusted, then the heads of the needles to be pushed fairly into the lip, and pulled together by twisting the wires; the points of the needles are then to be cut off close to the skin, and the stumps retracted into the flaps. In this way nothing is left to "catch," and when the needles are removed, by untwisting the wires and pulling by them, there are no scars left.

In the last case in which I used this method the parents of the child, aged seven years, say that it is scarcely possible for a stranger to tell that the child had been operated upon, and in this case there was a complete and very wide intermaxillary cleft, which I had previously closed.—*Lancet, Sept.* 25, 1869, *p.* 435.

49.—SUTURE PIN CONDUCTOR, A NEW INSTRUMENT TO FACILITATE THE INSERTION OF PIN SUTURES.

By Dr. GURDON BUCK, Surgeon to the New York Hospital.

In operations upon the lips and face in which exact adjustment of the edges of the wound is especially important, so that the least conspicuous scar may follow, the figure-of-eight pin suture is, in the judgment of the author, preferable to any other suture. To facilitate the introduction of the pin, the instrument herewith described has been devised, and has proved so satisfactory in use that it is believed a good service will be rendered to practical surgery by making it known to the profession.

The instrument consists of a needle, of the slightness of an ordinary knitting needle, fixed on a handle and slightly curved. It grows a little larger round for half an inch near its point. Its extremity is bevelled off to a sharp point on its concave side, and perforated lengthwise on its bevelled face like the stem of a hypodermic syringe, such as is in common use. The mode of using it is as follows: The edges of the wound intended to be brought into coaptation, having been traversed by the conductor, guided by one hand, a pin held between the thumb and fingers of the other hand is engaged by its point in the perforated hole at the end of the conductor, and held steadily in place while the conductor is withdrawn and the pin made to follow it, which it does with unerring certainty. A soft iron or silver wire may be inserted in the same manner as the pin when it is intended to employ a wire suture.

The instrument is manufactured and kept for sale by Messrs. Geo. Tiemann & Co., No. 67, Chatham Street.—*Medical Record, July* 1, 1869, *p.* 211.

50.—ON THE USE OF CARBOLISED CATGUT LIGATURES.

By JAMES SPENCE, Esq., President of the Royal College of Surgeons, of Edinburgh, Professor of Surgery in the University of Edinburgh.

[The following case shows the use of the carbolised catgut ligature to be by no means free from danger.]

Having occasion, on Wednesday, 12th April, to tie the right common carotid artery, I determined to use the carbolised catgut ligature so strongly recommended by Professor Lister, of Glasgow. To give the method a fair trial, I had some catgut prepared for the purpose; but not being satisfied with it, I obtained a carbolised catgut ligature from Prof. Syme's department of the hospital, as I knew it had been used there in cases of amputation, and was prepared according to Prof. Lister's plan. The ligature was a fine one, firm and even in structure; and before using it, it was dipped into the ordinary weak carbolic solution to render it pliable.

I exposed the artery very carefully below the omo-hyoid, and passed the ligature round the vessel with the least possible disturbance of its connexions. I was most particular in tying the artery. I tightened the first noose of the reef-knot firmly with the points of my forefingers, and withdrew them along the ends of the ligature so as to keep it firm; and still further to prevent all risk of the first noose slipping, I requested Mr. Annandale, who was assisting, to fix the knot by pressing on it with the handle of the needle, whilst I cast the second noose of the reef-knot and tied it. As I was to cut the ends of the ligature close to the knot, I took the further precaution of protecting the ends of the reef-knot by tying a third knot, close to which I cut off the ends of the ligature. The wound was was then washed with carbolic-acid solution, accurately closed by points of suture, and a slip of lint soaked in carbolic oil was laid over it and fixed with strips of plaster. So specially particular was I in regard to the operation that I did not even use the hospital sponges, but new sponges thoroughly steeped and washed in dilute hydrochloric acid, then in water, and lastly in a weak solution of carbolic acid. I mention these things to show that every possible precaution was used to give the method a fair trial.

The patient was very comfortable during the afternoon and evening succeeding the operation, and passed a good night, with the exception of sickness from the chloroform when he took liquids. On Thursday morning, at half-past ten, I received a message to say that he had suddenly become comatose and paralysed on the left side. On my arrival at the hospital I found the patient quite unconscious, and his left arm and lower extremity paralysed. My resident surgeon, Mr. Bramwell, informed me that about nine o'clock the patient asked the nurse for a draught of milk, after taking which he vomited; and during the vomiting the nurse observed him move his limbs violently, and he then became insensible and palsied, as before mentioned. Sinapisms to the spine and cold to the head were applied, but remedies produced little or no effect, except that the lower limb somewhat recovered its power of motion, not sensation. My opinion, from the symptoms present, and the mode of their invasion, was, that some diseased vessel at the base, or in the substance, of the brain had given way, causing compression or breaking up of the brain-substance on the right side, as this was likely enough to occur when, owing to the interruption to the circulation through the carotid, the blood would be thrown with increased force on the collateral branches.

The patient died on the morning of the 15th of May; and as I was anxious to secure the parts operated on before decomposition occurred, I had the wound in the neck enlarged, and removed them some hours after death.

On examining the carotid artery, I was not a little surprised to find that it did not seem in the slightest degree constricted at the point of deligation; in fact, at first I saw nothing which I could recognise as the ligature. On careful examination, however, I found that what at first seemed some lymph or tissue, was the catgut softened. The circle of the ligature had given way apparently on the side of the vessel nearest the trachea, the entire knot being connected with the end of the ligature which was visible. On looking at the ligature with a pocket lens, the texture of the catgut was distinctly seen, but it was so gelatinous and pulpy that it seemed as if it were cast in gelatine, and a portion removed for microscopic examination, when placed between two slips of glass, spread out like a fluid. The head was subsequently opened, and the brain examined, when an embolic clot was found plugging the middle cerebral artery.

Reviewing the case under the light thrown on it by the post-mortem examination. I think there can be little room for doubt that the softened and altered catgut ligature had yielded during the vomiting, and that the blood-current in the carotid had forced the recent clot at the point of ligature into the cerebral arteries, causing embolism, and the fatal result.

I have had some experience in tying arteries in the human subject, and I at one time conducted a very extensive series of experiments on the effects of ligature of arteries on the lower animals; but I never saw a case in which the ordinary ligature of silk or linen thread yielded or slipped, and never knew of a case in which the constricting circle gave way as in this case.

Under these circumstances, whilst I believe carbolised silk or linen thread may be perfectly safe, I cannot avoid the conclusion that catgut, however prepared, is liable to become altered, softened, and disintegrated by the heat and moisture of the living tissues around it, and thus allow the deligated vessel to become again permeable. I learn also that, in a case of amputation of the thigh in which the femoral artery had been tied with catgut, hemorrhage occurred from the ligature slipping off.—*Lancet, June* 5, 1869, *p.* 772.

51.—THE CARBOLISED CATGUT LIGATURE.

By Dr. **Edward Lawrie**, Resident Surgeon, Mr. Syme's wards, Royal Infirmary, Edinburgh.

The failure of the catgut ligature in Professor Spence's case of ligature of the common carotid artery may have given rise to doubt in the minds of some members of the profession as to the expediency of using the antiseptic catgut ligature in the manner recommended by Professor Lister for the deligation of of large arterial trunks. As I am specially concerned in Mr. Spence's case, from his having used a ligature prepared by me, I hope you will allow me space for a few remarks, which may throw some light on so important a subject.

I wish, in the first place, to make some remarks with regard to the ligature itself; and, secondly, to notice the means used to prevent putrefactive suppuration in the wound afterwards.

Since Mr. Lister discovered the antiseptic catgut ligature, it has been constantly used in Mr. Syme's wards in amputations, &c., though, as yet, there has been no opportunity of using it for vessels in their continuity. On the 12th of May, the day of Mr. Spence's operation, one of his dressers came to me in a great hurry a few minutes before the operation was to be performed, to ask if we had any "carbolised ligatures," either silk or catgut. I gave him some of both kinds, that had been prepared for our own use three days previously, but which had by that time got perfectly dry, and had probably parted with most of the carbolic acid they had imbibed. I was not aware, I confess, at that time, of the importance of the directions which Professor Lister has given, that the gut should be kept steeping for a protracted period in the antiseptic solution. Though Mr. Spence describes very carefully the way in which he made the knots in tying the vessel, it is quite possible, considering the state of the catgut at the time of the operation, that the first knot yielded while the second was being tied; and the unusual precautions which he adopted to guard against this occurrence imply that he felt apprehensive of it. This view is borne out by what was seen by myself and others in the dissected preparation, where after the knots had been unfortunately completely cut away, more catgut was visible on the vessel than could possibly have formed the constricting ring if the first knot had retained its hold.

As to the precautions taken to prevent subsequent putrefaction in the wound, I can only say that, whatever the sponges were washed with before the operation, they were frequently wrung out of water without carbolic acid during its performance; that no means were taken to render the instruments, or the fingers of the operator or his assistants, innocuous; and that the dressing of the wound consisted of a single strip of lint moistened in a solution of oil and carbolic acid (one part in twenty), not large enough to overlap the wound half an inch in any direction. These are the precautions which Professor Spence took "to give the method a fair trial;" and they have only to be compared with the directions of Professor Lister, or the way in which Mr. Bickersteth's operation on the common carotid artery was conducted, to show that they were entirely insufficient to prevent putrefaction. Accordingly, putrefactive suppuration did actually occur, as was proved by the appearance of the wound immediately after death. I happened to be the first to examine it, and found its deeper surfaces coated with yellow pus, and offensive from decomposition. Under such circumstances it is not surprising that the catgut was then soft, and even diffluent; but it by no means follows that it was so at the time when the cerebral symptoms supervened, which was within twenty-four hours after the operation: indeed, it appears inconceivable that such can have been the case.

Lastly, I cannot but regard it as strange that the artery was never laid open to ascertain whether the coagula had really been displaced. That this was so is, so far as I am aware, merely a matter of hypothesis.

From the above facts your readers will probably be of opinion that, while there is no sufficient evidence that the patient's death was really caused by the operation, the manner in which the method was carried out sufficiently explains the failure.—*Lancet, June* 19, 1869, *p.* 864.

52.—THE CARBOLISED CATGUT LIGATURE.

By E. R. Bickersteth, Esq., Liverpool.

The remarks made by Mr. Spence in the Lancet of the 5th instant, on the failure of the carbolised catgut ligature in his case of deligation of the carotid artery are, without doubt calculated seriously to prejudice the minds of all operating surgeons against its use, by causing distrust in its safety. With the hope of preventing this, and of restoring confidence in the employment of what I believe to be a most valuable addition to the surgical *armamentarium*, I venture to make the following brief remarks upon my own cases, upon Mr. Spence's case, and upon the results of an experiment with the catgut which I have recently performed.

As I have already detailed in your columns (the Lancet, May 29th and June 12th), I have tied the common carotid and external iliac arteries for aneurism with the catgut ligature with the most signal success; the entire wound in the former case healing at once, and in the latter all except the superficial portion uniting in a similar manner. I have also employed the catgut in three cases of amputation, tying with it the femoral artery twice, and the popliteal once. The ends of the catgut were cut off, torsion was applied to the other vessels, and, the flaps being brought together, the wounds healed readily. In no case was there any subsequent hemorrhage, showing that the ligatures must have held fast.

And now, with regard to Mr. Spence's unfortunate case, we find, from his own account, that the next morning, or within twenty-four hours of the operation, the patient, while in the act of vomiting, became suddenly comatose and paralysed on the right side. This condition continued till his death on the morning of the 15th, less than three complete days after the operation. On post mortem examination, the carotid was found not to be constricted at the point of ligature; and the catgut, or what remained of it, was so softened and pulpy "that it seemed as if it was cast in gelatine, and a portion removed for microscopic examination, when placed between two slips of glass, spread out like a fluid." An embolic clot was found plugging up the middle cerebral artery; and the inference drawn was that the catgut ligature had given way at the time that the patient vomited, and that the current of blood, having again found its way through the artery, had swept away the soft, newly formed clot, a portion of which, entering the middle cerebral, had caused the fatal issue. In your number of June 19th, a letter appeared from Mr. Lawrie, Mr. Syme's house-surgeon, and from that gentleman's account, it appears that Mr. Spence, in spite of his statement that everything at the operation was conducted *secundum artem*, and in strict accordance with Mr. Lister's principles, does not in reality seem to have followed out those principles at all; and I am convinced that it is only by scrupulous adherence to the smallest minutiæ that success is to be obtained. Furthermore, Mr. Spence's view as to the cause of the embolism, though not improbable, is still not absolutely a certain one, since Mr. Lawrie distinctly states that the carotid artery was never opened, so as to see in what condition the clot at the point of ligature really was.

Apart, however, from these considerations, I was so struck with the extreme improbability of a proper piece of carbolised catgut becoming in three days little more than a diffluent jelly, that, before Mr. Lawrie's letter appeared, I performed the following simple experiment, with a view of discovering what actually does occur to a piece of catgut imbedded in living tissues for a certain period :—A patient in my wards being about to have his foot removed for disease of the ankle-joint, I, with his consent, pinched up the skin on the dorsum of the foot, and passed a needle, armed with a double carbolised catgut ligature, through the living tissues, cutting both ends of it close off. The skin, being released, resumed its natural position, leaving the two pieces of catgut buried in the textures on the dorsum. The needle punctures healed at once, and no inconvenience whatever was caused to the patient by the presence of the ligatures. This was done at two p.m. on the 5th inst., the gut used being what is known as the finest violin string, and having been prepared a month before. The foot was removed at two p.m. on the 8th, and was at once carefully examined by Mr. Banks, the pathologist to the hospital, who has given me the following report :—

"On the 8th of June, I examined the foot of A. B., a patient in Mr. Bickersteth's wards, which had been amputated about a quarter of an hour previously. Two small black points were visible on each side of the dorsum of the foot which indicated the punctures by which the needles had entered the skin. They were quite healed. The two pieces of the double catgut ligature which had been inserted by Mr. Bickersteth seventy-two hours previously were laid bare by dissecting down upon them at one end, and then slitting up the track in which they lay. They lay side by side, running principally through the substance of the extensor brevis digitorum muscle. On lifting them out, they were found to adhere slightly to the muscular fibres through which they passed, and the now empty tract was seen to be coated with a whitish film. This was scraped off at one part, and the material so collected was examined with $\frac{1}{4}$ and $\frac{1}{8}$ Powell and Lealand's glasses. A great many blood-corpuscles were visible—derived, no doubt, from blood unavoidably pressed out from the muscular fibres, as the foot was still quivering when examined. In addition to innumerable indefinite granules, molecules, and nuclear bodies, there were present a large number of granular multinucleated cells, the majority being about the size of white blood-cells, many of them larger, and a few smaller. The edges of many of them were rough and crenated. On the addition of acetic acid the cell envelope was rendered almost invisible, and the granular nuclei in the interior became sharp and well defined.

In short, the microscopic appearances were just such as would be presented by organisable lymph. The pieces of catgut themselves were swollen about a fourth larger than when inserted. All the twists in them were quite as well marked as ever. They sustained a weight of about three pounds each, and would have borne more, only, as they were not more than two inches long, a string had to be fastened to one end by which to attach the weight. As the weight increased, this at last came off, stripping down the outer softened part of the gut, but leaving the inner and harder portion as a thick thread; this showed the tenacity of the ligature. Pieces of the catgut were examined with the microscope, but simply showed a dim, semi-transparent, homogeneous structure, streaked longitudinally."

From this it appears that properly prepared catgut, after remaining imbedded in the living tissues for seventy-two hours, so far from becoming pulpy and incapable of resisting the impulse of an excited circulation, is equal to bearing a strain of upwards of three pounds. When improperly prepared—when allowed to become "perfectly dry," and remain so till "within a few minutes" of being doubly and trebly knotted with the tightness necessary to close an artery the size of the common carotid,—it is not impossible that the gut may have broken or become cracked. It could hardly, however, have been anticipated that catgut of any kind should have so completely degenerated in the "course of three days," even when, as in Mr. Spence's case, the antiseptic treatment was subsequently so imperfectly adopted that the deeper surfaces of the wound were afterwards found coated "with yellow pus, and offensive from decomposition."—*Lancet, July* 24, 1869, *p.* 142.

ORGANS OF CIRCULATION.

53.—TRAUMATIC VARICOSE FEMORAL ANEURISM SUCCESSFULLY TREATED BY LIGATURE.

By James Spence, Esq., Surgeon to the Queen in Scotland,
President of the Royal College of Surgeons of Edinburgh,
Professor of Surgery in the University of Edinburgh.

The following case appears to me to be worthy of publication, as I can find no mention of any instance of traumatic varicose femoral aneurism which has been treated on the same principles, whilst the method of treatment generally recommended, and which has been hitherto almost invariably adopted in such aneurisms at the bend of the arm, seems to me to be inapplicable, or at least attended with grave risks in the case of the femoral.

[The patient was a lad 15 years of age, who had been wounded by a stab with a knife in the upper part of the thigh. There was great loss of blood, but the wound healed nicely. Nearly three weeks afterwards he was walking hurriedly, when he felt a "beating" in the part, but no pain, and on examination a pulsating tumour was found which was diagnosed by Mr. Miller, of Edinburgh, as a false aneurism.]

I found the patient a lad of slender form, and tall for his age, of delicate appearance, and somewhat anæmic. On examining the right thigh, I observed a cicatrix as of a recent punctured wound, situated on the outer border of the sartorius muscle, five inches and eight lines below the middle of Poupart's ligament. Extending from the puncture there was a pulsating swelling, not very prominent, somewhat flattened, of an elongated oval form, two and a half inches long by one and three-quarter inches broad. About two inches of the swelling were on the proximal side of the wound, *i.e.*, towards Poupart's ligament, and about half an inch on the distal side. Besides this distinct pulsating tumour, there was also an undefined fulness on the inside of thigh, close up to Poupart's ligament, caused by the dilated femoral vein, and the upper part of internal saphena was also dilated. The aneurismal swelling at the wound was seen to pulsate, and the pulsation was very strong when the hand was placed on the tumour, and accompanied by a most peculiar thrill, almost startling, when first felt. On using the stethoscope, besides the "blowing" sound, there was also heard a loud buzzing or whizzing bruit, which has been not inaptly compared to the noise made by a "blue-bottle fly confined in a paper bag." This latter sound was so loud as to be heard even at a little distance, and without the stethoscope. The thrill and whizzing murmur extended upwards from the wound both in the aneurismal tumour, and also in the dilated femoral vein, as high nearly as Poupart's ligament, but they were much less distinct in the lower part of the aneurism —only barely appreciable. The pulsations of the anterior and posterior tibial arteries seemed rather weaker than in the sound leg. The patient felt the limb somewhat cold, but the thermometer showed no difference in the actual temperature.

I directed that he should be kept perfectly quiet in bed, with the thigh flexed on the pelvis, and that graduated compression should be maintained upon the common femoral artery, at the brim of the pubes, where it emerges from the abdomen, by Carte's compressor, modified so that the pressure was made by means of a leaden weight instead of the full screw action. He was ordered to have a nutrient, non-stimulating diet, consisting of milk, with white of eggs, and farinaceous and a little animal food. Under this treatment the pulsations and bulk of the aneurism diminished, but I found that the compression, though as far as possible limited to the artery, interfered with the venous circulation, and gave rise to so much pain and swelling in the thigh, and irritation of the inguinal glands, that it was obliged to be abandoned. Ice was then applied over the swelling and to the groin, and was beneficial in allaying the irritation resulting from the compression, but it had little effect on the aneurism; and I therefore determined to operate as soon as the local irritation was subdued.

I had from the first contemplated the probability of an operation being required, and had carefully weighed in my mind what method of procedure I should adopt, and had decided, for reasons which I shall explain hereafter, to tie the superficial femoral above and below the aneurism without opening the sac. Accordingly, on the 8th of April 1868, assisted by Drs. Dunsmure, Gillespie, Littlejohn, Taylor, and Mr. Miller, I proceeded to perform the operation I had planned. The patient being put under the influence of chloroform, I made an incision 7½ inches long, commencing about 2 inches below the middle of Poupart's ligament, and continued downwards in the course of the femoral artery. This incision passed over the long axis of the aneurism, and crossed the course of the sartorius muscle, so that I might reach the artery under the inner border of that muscle at the upper part, and under its outer margin at the lower part of thigh. In making my incision I was careful to cut lightly over the tumour, so as not to divide more than the skin and fat. I next proceeded to clear the artery in the lower part of Scarpa's triangle. In doing so I found the parts more matted together and thickened, and the depth increased from the plastic and serous effusion to a much greater extent than the external appearances would have led me to expect. I required to take great care in clearing and drawing aside the inner edge of the sartorius, which, instead of being loosely connected as usual, was adherent. The sheath of the artery, however, was not so affected, and was readily recognised and carefully opened, and the artery cleared for passing the aneurism-needle. The vein, much distended, was felt bulging under the artery. The armed needle was then carefully passed round the vessel, the ligature left *untied*, and the ends held by an assistant. I next proceeded to tie the femoral below the aneurism in Hunter's canal. The fascia over the outer edge of the sartorius was freely divided, and the edge of the muscle cleared. Here a difficulty occurred, not from adhesion of the margin of the muscle at the part cleared, but owing to the body of the muscle over the aneurism being blended with the tumour, and forming part of the false sac. I found I could not turn over the muscle or draw it aside, so as to expose the aponeurosis covering the artery, without using such force as would have endangered breaking up the limitation of the aneurism. I had, however, forseen this difficulty, and accordingly I divided about half the breadth of the sartorius, so as to expose and reach the vessel, which here lay very deep, the depth being increased by the proximity of the aneurismal tumour, as I wished to tie the artery as close to that as I could. When I had passed this ligature, I tied it firmly, and then proceeded to tie the upper ligature, which had also been applied as close as possible to the swelling. So soon as the upper ligature was tightened, all pulsation and sound ceased, and the appearance of tumour was almost effaced. The long wound was then closed by points of suture, a slip of dry lint placed over it, and retained by slips of adhesive plaster; the foot, leg, and knee were wrapped in cotton wadding, and the patient placed in bed, with the knee very slightly bent, and laid on its outside on a soft pillow.

When he recovered from the chloroform he was a little sick, and vomited. An opiate was administered. The milk and farinaceous diet was ordered to be continued. The patient progressed very favourably, and required little treatment, except medicine and enemata to act on the bowels, which were very constipated, so as to prevent straining at stool, and the wound healed well. No marked alteration in the temperature of the limb occurred after the first two days. On the twelfth day after the operation, the lower ligature came away when I was dressing the wound, and without any appearance of blood. Slightly stimulating lotions were used to wash the points of the wound which had not cicatrized, and support was given by strips of adhesive plaster. On the 25th of April I had to leave for London, and I visited him on that day (the eighteenth after the operation). He was looking well and cheerful; pulse 86, and soft, and his tongue clean; the wound looked well,—in fact, except where the upper ligature hung out, and one or two other points, it had united; and I considered him almost, if not altogether, out of danger. I left Dr. Dunsmure, who took charge of my cases, to look after him as regarded the surgical treatment. From that gentleman I received a letter, informing me of a somewhat unexpected and sudden change in the progress of the case:—

"You left on Saturday the 25th. On Sunday I got a note saying that after straining at stool, four drachms of blood had come from the incision. On visiting him I found no trace of hemorrhage at either of the ligatures, but the wound had opened over the sac, and a clot of blood was lying in it; his pulse was quick, 120, and his skin hot. Mr. Miller had ordered him aconite, which made him sick. All that I did was to enjoin quiet, cold to the wound; and, as his tongue was loaded, I ordered him a blue and compound rhubarb pill. On Friday, when I saw him with Mr. Miller, he looked more than usually pale, and his pulse was still quick, but the skin and tongue were better. He had had pain in the right side, and some cough, both of which were relieved by a poultice. I ordered him a better diet, wine (claret) and iron, and to-day his pulse is 96; the wound is almost healed, the part over the sac is healthy, and I have no fear of him. I took hold of the ligature, but it is not yet sufficiently loose to come away."

After this the bad symptoms seem to have disappeared, and, on my return to Edinburgh on the 11th May, I found him looking very well, the wound healed, except at the ligature, which I found was lying loose, and therefore removed it. From this time nothing worthy of record occurred. He was allowed to walk at first with a crutch, and subsequently to use the limb. He was lame for some time owing to the stiffness of the knee, but this gradually disappeared, and he now uses the leg perfectly. For some time after the operation I directed him to use a flannel roller to support the venous circulation in the limb. The cicatrix was narrow and firm; not the slightest pulsation or bruit to be felt or heard, no appreciable venous congestion, and his general health excellent.

To-day (10th June, 1869) I examined Mr. K. As already stated, the aneurism is thoroughly cured; not the slightest pulsation or thrill can be felt; but the appearance of the limb indicates some obstruction or alteration in the venous circulation of the part. The right thigh is greater in circumference by one inch than the left. The swelling is neither tense nor œdematous, but soft and elastic. The cicatrix is thinner and broader than it was eight months ago; whilst towards the groin numerous small superficial veins are seen dilated and slightly tortuous; but the common femoral and great saphena veins, which were distended and varicose before the operation, seem now of their normal size.

Remarks.—Since the time that Dr. William Hunter first drew attention to the subject, numerous observations have been recorded in reference to the pathology and treatment of varicose aneurisms, but, with few exceptions, these have been cases in which the disease was situated at the bend of the arm, and in most of them the operative procedure has been the same as that for ordinary false aneurism in the same position—viz., laying open the sac and tying the wounded artery above and below the opening; and in some of the cases ligature of the affected vein has also been practised.

In one or two cases the brachial at the middle of the arm has been tied, but not with results that encourage repetition the Hunterian method. Indeed, in the upper extremity the ligature of the wounded brachial artery above and below the opening, and gentle compression of the injured vein, answers sufficiently well, and the operation is not likely to be attended with bad results. It is, however, very different with regard to such aneurisms in the femoral region.

All surgical authorities are agreed as to the great danger which attends obstruction of the femoral artery when complicated with any lesion of the accompanying vein, gangrene being the almost invariable result. So much have the risks of such a complication influenced practice, that even in cases of ordinary traumatic false aneurism of the femoral, in the position of Hunter's canal, an exception has been made to the general rule of operating in false aneurism by direct incision into the sac. Thus, in cases where the traumatic aneurism is of some standing, and the parts condensed, it is considered better, in the case of the femoral artery, to tie the vessel by the Hunterian method in Scarpa's triangle, lest, from the close proximity of the vein and the condensation and matting of the wounded parts, the latter vessel might be injured in operating by the direct method; and Professor Syme and others have recorded cases showing the success of such treatment.

In considering what method of operation I should follow in the case of K., I could find but little information in surgical works as to the treatment of traumatic varicose aneurism of the femoral, either as regarded general principles or the results of actual practice. As I have already said, most of the observations of Hunter, Park, Hodgson, Breschet, Sabatier, and Dupuytren, had reference to varicose aneurisms at the bend of the arm, and the general rule laid down, as drawn from such cases, was to open the sac and tie the vessel as in false aneurism —a rule repeated, I see, in the last edition of Professor Erichsen's "Surgery," as applicable to varicose aneurisms generally.

The only author who differs from this practice is the late Mr. Lizars, who, speaking of this form of aneurism at the elbow, advises tying the artery above and below the wounded point without opening the sac. His reason is, the risk of phlebitis, if we interfere with the vein; and I recollect seeing him perform this operation in a small varicose aneurism of the brachial in the Royal Infirmary. At the bend of the arm, however, the results of the ordinary operation have shown that the risk Mr. Lizars dreaded was so slight that his plan has not been generally followed.

In looking to the history of cases of this aneurism in the thigh, I could find very few cases recorded, still fewer where any operation had been performed. Several of the cases which had done well without treatment were evidently cases of aneurismal varix, and not of varicose aneurism. It is essential to remember, in reference to treatment, that whatever symptoms these two diseases may have in common, such as the peculiar "bruit," the state of the veins in the affected limb, or in regard to the constitutional effects consequent on admixture of venous with arterial blood, they differ in this important feature, that in aneurismal varix we have the vein and artery closely adherent and communicating directly, and that, although both vessels undergo dilatation and some alteration in structure and function, there is no aneurismal tumour involving the risks incident to all aneurisms, and consequently in it all that is generally required is moderate support to the venous circulation by bandages, elastic or laced stockings. In varicose aneurism, on the contrary, the false sac, which communicates with both vein and artery, has a constant tendency to increase, burst, and diffuse its contents into the limb, or else lead to ulceration of the skin and fatal hemorrhage.

The records of traumatic varicose aneurism of the femoral or popliteal are very meagre. I can find only two cases detailed, and one doubtfully alluded to by Sabatier. Both the detailed cases were in the popliteal artery. One case occurred under M. Larry, Director of the Military Medical School at Toulouse, and uncle of Baron Larrey. In that case amputation was performed. In the other case, under the care of Dr. Dorsey of Philadelphia, the disease followed a gunshot wound. The femoral artery was tied in the middle of the thigh, and hemorrhage supervened and destroyed the patient. Mr. Hodgson, in his work on the blood-vessels, suggests that ligature of the femoral in Scarpa's triangle would be the proper plan of treatment. The diminution of the force of the blood after the ligature, he thinks, would favour the formation of a coagulum, which would finish by filling up the sac, and obliterate its opening of communication with the vein; but he adds, "I do not think, however, that any one has yet tried this operation."

Since operating on the lad K., I have learned from Mr. Paget that Mr. Lawrence operated by Hunter's method in a case of varicose aneurism of the thigh; but gangrene came on, amputation was found to be necessary, and the patient died. There is a brief notice of the case in the Catalogue of the Museum of St. Bartholomew's Hospital, vol. ii., Descriptions of Casts; but there are no details given.

In deciding on the method I should adopt, when I found that compression could not be continued with any hope of success, it appeared to me that I could scarcely trust to ligature of the superficial femoral in Scarpa's triangle; for, though I believe that to be the safest procedure in certain cases of simple traumatic aneurism in the thigh, the conditions are very different in the varicose. In a simple traumatic aneurism of the femoral artery in the middle region of the thigh, where some time has elapsed after the injury, the dense aponeurotic structures, confining the wounded vessel and extravasated blood in a narrow space, assisted by the condensation of the surrounding cellular tissue resulting from plastic effusion, serve to form an amount of limitation and circumscription almost equal to the sac of a true aneurism, and to favour consolidation of the blood-clot; so that when the force of the direct blood-current is shut off, gradual consolidation and obliteration take place, as in cases of true aneurism. In traumatic varicose or arterio-venous aneurism, on the other hand, whilst we may have similar limitation as regards the surrounding parts, we must keep in mind that through the interior of the sac there is a communication more or less free with the large femoral vein; so that the retrograde current of blood will meet with no resistance in that direction. Complete consolidation of the contents of the sac could scarcely be looked for, and, as the collateral circulation enlarged, the retrograde current would become stronger, and in all probability, the diseased condition would be re-established.

The plan generally adopted in varicose aneurisms at the bend of the arm I have already indicated as being inapplicable in the thigh; for if surgeons avoid operating in the usual manner for ordinary traumatic aneurisms of the femoral, from dread of injury to the vein, what is only a risk in that case becomes a certainty in varicose aneurism; because in it the artery and vein already communicate in the sac, and opening the sac, therefore, implies more or less interference with the vein, and would be followed by the usual bad results. Careful consideration of these circumstances induced me to adopt the plan of tying the femoral artery above and below the sac, in such a manner as to avoid opening or injuring it, by the operative procedure I have described in the case. By doing so, I trusted that all arterial retrograde circulation would be obviated, that coagulation of the contents of the sac would take place, and that the wound of the vein, communicating with the sac would thus be closed, and that the venous circulation would be restored to its natural channel. So far as the artery is concerned, my expectations have been fulfilled, and the aneurism is thoroughly cured; but, judging from the present appearance of the limb, some slight obstruction to the venous circulation would seem to exist, and, though not productive of any inconvenience at present, will require to be remedied by the use of an elastic stocking to support the returning column of blood, and so avoid any tendency to varix.

From a full consideration of the general principles on which the method of operating I have described is founded, as well as as from the successful result of the case narrated, I feel satisfied that it is the proper mode of procedure in cases of varicose aneurism.

In closing, I would merely advert to the sudden and unexpected invasion of peculiar and serious constitutional symptoms so late as the nineteenth day. I do not pretend to speak decidedly, but my first impression when I received Dr. Dunsmure's letter was, that some small detached portion of the contents of the sac had found its way into the vein, and given rise to embolism, although the favourable termination of the symptoms scarcely warrant that idea; and, possibly, it was mere febrile disturbance, due to some irregularity in diet.—*Edinburgh Medical Journal, July*, 1869, *p.* 1.

54.—ON THE TREATMENT OF ANEURISM BY IODIDE OF POTASSIUM.

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[For Dr. Balfour's previous article on this subject refer to *Retrospect*, vol. lviii, p. 198.]

During the past twelve months I have had under my care several cases of thoracic aneurism, all of which have been treated with the iodide of potassium, and in all of them this treatment has been attended with such a measure of success as fully to justify the encomium I formerly pronounced upon it as holding out a better prospect of relief, if not of cure, than any other method hitherto devised for the treatment of internal aneurism. (Edinburgh Medical Journal, July, 1868, p. 42.) In my former paper I carefully pointed out the many fallacies which embarrass us in making up our mind as to the value of any special treatment in such a disease as thoracic aneurism, in which the symptoms occasionally undergo spontaneous abatement, without any real improvement having taken place; the cases I am now about to relate will, I think, convince even the most sceptical inquirer that in many cases at least, a real improvement does take place, permanence of which must depend upon various circumstances, over which neither physician nor physic have any control. The value of the treatment is shown in the fact, that not only relief to symptoms, but positive improvement has been obtained in every case which has submitted to it for a sufficient length of time; while there are many facts which tend to prove that iodide of potassium is not only curative in aneurisms already developed, but that it also acts remedially and prophylactically in the aneurismal diathesis; a much better thing both for physician and patient.

Aneurism of the Aorta.—Peter Reid, hotel-porter, aged 46, admitted into Ward VII., June 18, 1868. This man was drunk when admitted, having avowedly taken spirits to nerve himself for his apparently rapidly approaching dissolution. He had intense dyspnœa, amounting to complete orthopnœa, violent, harassing, but dry cough, and felt and looked as if on the point of suffocation, while a large, soft, projecting and pulsating tumour seemed to threaten him with death in another form. He was ordered at once fifteen minims of chlorodyne, to be repeated every half-hour till the cough was quieted, and also

℞. Pot. iodidi, ℥ss.; infusi chiratæ, ℥vi. Solve.
Sig., one tablespoonful (℥ss.) three times a day.

He was also, of course, desired to keep his bed, in which he was supported in a semi-erect posture, and to restrict his food and drink. Within twenty-four hours this man expressed himself as somewhat relieved, and in a few more he began to breathe more freely. He is an old soldier, and about 24 or 25 years ago was cupped in a military hospital for palpitations, which continued more or less after his discharge, till about ten years past, in the end of February (1858), he came into this hospital on account of excruciating pain in the right side and down the right arm, which he had felt for some months previously. There was also at that time a slight swelling, accompanied by pulsation, to the right of the sternum. This pain was always most excruciating in winter, when he caught cold, or had any unusual exertion. After eighteen months the tumour protruded externally, and the pain then ceased to be so agonising. During the last eight or nine months the tumour has grown more rapidly than it has done for years, and this he attributes to the extreme violence of the cough. He has been under various physicians both here and in London, and has been, so far as he knows, mainly treated with digitalis and hyoscyamus internally, and the application of ice externally. To the right of the sternum there was a large pulsating tumour, extending from the third to the seventh ribs, and projecting fully an inch and a half beyond the level of the ribs. Part of this tumour was solid, but part, rather beneath the middle, was soft, painful to touch, projected conically, and pulsated fluidly. Dulness extended for fully five inches all round the centre of the tumour, passing into the liver, dulness beneath. The pulse in the right arm was smaller than that in the left. The heart's apex beat between the sixth and seventh ribs and one inch to the right of the nipple, but there was no apparent hypertrophy, and the cardiac dulness was about normal. There was displacement but not enlargement, neither was there any anormal bruit either over the heart or tumour. The right pupil was somewhat dilated. There was considerable pain in the side and down the right arm, but nothing to what it had been. After the patient had somewhat recovered from his frightful condition on entrance, a belladonna plaster was applied over the tumour, and the chlorodyne was gradually stopped as the cough ceased, which it had almost entirely done by the 12th of August, at which date the patient looked, felt, and expressed himself as much relieved; the pulsation in the tumour was much less forcible than formerly, and the tumour itself was flatter and more solid. On the 31st of August an ice-bag was substituted for the belladonna plaster, but was only continued for four days, because, although it felt comfortable to the patient, and relieved the distressing pulsations, it increased the cough very much; the belladonna plaster was, therefore, reapplied. At this date he expressed himself as feeling very comfortable, and able both to breathe and swallow easily, neither of which he could do formerly, while the tumour was gradually decreasing. On the 21st of September, however, the cough had again become very troublesome, accompanied by a distressing tickling sensation in the larynx, and an increase in the aneurismal pulsations, which were just as bad as they had formerly been. Chlorodyne made him sick, so he was ordered—

℞. Morphiæ hydrochloratis, gr. i.; acidi hydrochlorici dil., ♏v.; acidi hydrocyanici dil., ʒss.; syrupi scillæ; aquæ fontanæ, āā ℥i.

Sig., One teaspoonful every two or three hours. Fifteen-minim doses of chlorodyne to be given p. r. n., if he can be persuaded to take them; the iodide of potassium to be continued thrice a day, and the exterior of the larynx to be painted with iodine liniment. In a couple of days the cough was much relieved, and he continued improving up to the 8th of November; on the evening of which day he was suddenly seized with inability to move his left arm, and complete loss of pulse in it; he expressed himself as feeling great pain in the left side of the heart, but there was nothing anormal in the heart's action. By next day the pulse had returned, but the arm continued feeble for a few days. On the 10th of November a very violent serous diarrhœa set in, for which he was ordered—

℞. Plumbi acetat., gr. iii.; pulv. opii, gr. i. Ft. pil. Mitte tales, xii.

Sig., One to be taken every hour till the diarrhœa is checked, or sleep ensue; to be gradually dropped as improvement takes place.

Believing this diarrhœa to be a mere accident and not an evidence of iodism, the iodide of potassium was not stopped. The diarrhœa was much relieved by the next day, and ceased entirely in a day or two. At this date, the end of November, after five months' treatment, the patient's improvement was quite remarkable, the pulsation in the tumour very much lessened, the tumour itself perfectly solid at every part, and visibly decreased in size. I still, however, kept the patient in bed, and continued the treatment, in the expectation that I should ultimately have the pleasure of seeing the complete disappearance of even this large projecting tumour—an expectation which my experience leads me to consider well founded. Unfortunately about the end of December, my patient caught cold; so I then thought; I am now inclined to attribute to another cause the violent cough which then set in. Upon the 30th of December, at the visit, he was seized with violent spasmodic pain in the left short ribs, for which a mustard cataplasm was applied, with full doses of chlorodyne, to be repeated as required. This pain was speedily removed, but now and for some time afterwards he complained of feeling choky, and was harassed by a dry clanging cough, which resounded from one end of the ward to the other. For this iodine liniment was repeatedly painted over his chest, opium and morphia in every conceivable form, and in almost poisonous doses, hydrocyanic acid, and inhalations of chloroform, and of a solution of conium in chloroform were unavailingly persevered in for about a month. Towards the end of January, fifteen-minim doses of chlorodyne being still allowed p. r. n., other narcotics were stopped, and five minims of tincture of aconite B. Ph. were added to each dose of his iodide of potassium mixture, of which he had four doses in the day, each containing half a drachm of the iodide. The aconite was ordered to be gradually increased by drop doses daily. How far it was pushed I am not quite aware, because it was added by the house-physician himself. I am well aware, however, that the relief to the cough was very slight, and I also know that towards the end of February I happened to look into the wine-roll, and found, to my horror, that Reid was getting four ounces of brandy daily. This I immediately knocked off, with far more relief to his cough than I had been able to give him by all the narcotics I had been so lavishly pouring into his system. I found that he had over-persuaded the house-physician, stating that he was weak, accustomed to stimulants, and would never get better without them—all the ordinary arguments for self-indulgence. I found also that he had commenced with a pint of porter on 3rd December; that this had done him no harm; but an advance to four ounces of whisky on the 24th December had been very speedily followed by an exacerbation of his cough, not lessened by a retrogression to a whole bottle of pale ale on the 12th of January, probably increased by a change to four ounces of brandy on the 25th of January, and only remedied by knocking off all stimulants on the 25th of February. I at once saw that no more good was to be done: the element of mutual confidence was lost. I therefore permitted Reid to rise every day and walk about the ward; the iodide mixture was continued, but the aconite was stopped; and I must say, that not one of my patients ever rose from their beds such a scarecrow as Reid did. This I attribute partly to the stimulants he had unfortunately obtained, and partly to the narcotics by which the evil results of his self indulgence were so unavailingly sought to be neutralised. He was kept in hospital for three weeks longer, during which time he continued to improve, and was then dismissed on the 20th of March to go to his home in London. Thus this poor dying creature was, after nine months' treatment, dismissed in a comparatively active condition, and both looking and feeling well. A cast taken from the projecting tumour, about a month after his admission, and one taken just the morning of his discharge, show a very evident diminution in its bulk; while, in a letter which I have recently (24th May) received from my former house-physician, Mr. Frank H. Hodges, he says—"I called on Peter Reid on the 28th of April, and found him in a very satisfactory condition, the tumour had considerably diminished in size (since his discharge), he was quite free from cough, and went out for a constitutional daily."

The next case, is not only a very well-marked but also a very remarkable case of *aneurism of the aorta*, one which even taken singly would be sufficient to attract attention to the treatment propounded, but which, when regarded as only one of a series, provides indeed a very forcible illustration of the good effects to be derived from it.

Andrew Jamieson, a carter, aged 40, admitted into Ward II. under Professor Bennett's care, January 31, 1868. About eighteen months ago the patient had an attack of pleurisy in his left side; with this exception, he has been always healthy. About twelve months ago, without any known cause—as he is not aware of having strained himself in any way, though constantly in the habit of lifting heavy weights into his cart—he first felt a severe and constant aching pain in the left side of his chest, over a spot about the size of a crown-piece, situated about two inches above the nipple. This pain was much increased on making any exertion or on stooping. To relieve it he applied several mustard poultices, and took cod-liver oil, without, however, deriving any benefit. Notwithstanding the pain he suffered, he continued work up to July, 1867, but he was then compelled to give it up entirely on account of his sufferings. The pain was now more severe than ever; his breathing short and wheezing; he had a troublesome cough, worse on making any exertion; he experienced a choking feeling when he stooped, and he felt a difficulty in swallowing any solid food, which seemed to stick opposite the upper margin of the sternum. His voice also now became weak and somewhat hoarse—*vox anserina*—and he felt a disagreeable pulsation in his chest. For these symptoms he unavailingly sought relief in the Glasgow Infirmary, and finally came to Edinburgh. Up to the period of admission the pain had spread very much over the upper part of the chest, but he does not think that the other symptoms had increased; he has never had any headache or hæmoptysis. The pulse at the left wrist is almost imperceptible. The right pulse is 84, of moderate strength and slightly jerking. Cardiac dulness, not noted. The heart's apex beats three inches below, and a little external to the nipple line. Only the first sound is heard at the apex; both sounds are heard at the base normal. Over the upper part of the left side of the chest, anteriorly, there is a distinct bulging, most marked over the second rib and second intercostal space. Over a spot about the size of a crown-piece, there is a distinct impulse communicated to the stethoscope; over the left side, there is dulness of percussion from the clavicle to within two inches of the nipple line, extending across to the opposite sterno-clavicular articulation. Over this dull area a double blowing murmur is to be heard; "the second sound, however, being very feeble, and heard most distinctly over the sternum, over the articulation of the second rib, also heard over the great vessels at the root of the neck." At the right apex the inspiration is harsh and the expiration prolonged; over the left apex, anteriorly, the double murmur referred to completely obscures the sounds of respiration, which are everywhere else normal. The patient has a very loud and frequent cough, of a clanging metallic character, without expectoration. The patient complains of severe dull aching pain on the left side of the chest, from below the clavicle to the level of the nipple; this occasionally extends to the right side. He gets only occasional short snatches of sleep, owing partly to the pain referred to, and partly to the frequent recurrence of a choking sensation, referred to the throat. His tongue is clean, appetite bad, but bowels regular. Urine spec. grav. 1030, with deposit of urates, but otherwise normal. There is a slight puffiness of the integuments over the upper part of the sternum, and the veins over the dull area are visibly enlarged. He was ordered steak diet (Royal Infirmary diet tables), and—℞. Tinct. ferri perchlor., ʒi.; aquæ, ℥vi.

Sig., One tablespoonful three times a day.

4th February, the patient continues much the same as on admission. He still chokes on his food, and requires "a drink to wash it down." His cough and spasms of choking are very violent, and of frequent recurrence. Ordered to take fifteen minims of sulphuric ether in water, when the cough comes on.
12th February, pain and cough both worse; ordered—

℞. Tinct. camph. co., ℥i.; mucilaginis, ℥i. M.

Sig., ʒi. pro dose, p. r. n.

He continued not certainly improving till 17th February, when it is stated that the pain is better than it has been; slept two or three hours in the night. Complains of difficulty of breathing, much worse if he makes the slightest exertion. Pulse 100, of moderate strength; ordered—

℞. Potassii iodidi, ʒii.; aquæ, ℥vi. Solve.
Sig., Two tablespoonfuls three times a day.

Next day, 18th February, the pain is said not to be so bad as it had been; the pulse was 88, and of moderate strength; the cough and dyspnœa still continued. He was ordered to take fifteen minims of chlorodyne in water at bed time. On 22nd February it is reported that he did not cough so much last night, and that the pain no longer passes across the chest, but is confined to one spot, the size of a crown-piece, between the clavicle and nipple; the pulse is 84, and of moderate strength. On 3rd March, it is reported that the cough was more troublesome during the previous night, and that he complained of slight soreness across the lower part of the chest on coughing. Ordered to discontinue the iodide of potassium mixture. On 5th March the patient was ordered full diet instead of steak diet. On 10th March, his cough being very troublesome, he was ordered—

℞. Sp. chloroformi, chlorodynii, āā ʒiv.; aquæ, ℥vss. M.
Sig., One tablespoonful when the cough is troublesome.

The patient says the pain is worse in the left side of the chest to-day. He thinks it has not been so well since he left off the iodide of potassium. Ordered to recommence his mixture, taking only one tablespoonful three times a day, so that he now only gets ten grains of the iodide for a dose. He continued much the same, not complaining of the pain till the 21st, when he was ordered to discontinue the iodide of potassium mixture. On 23rd March, it is reported that the patient says he cannot see distinctly when reading or writing, as if a mist came before his eyes; he has noticed this since the 19th. On 31st March, he was ordered to apply pounded ice, in a bag of thin gutta-percha, over the pulsating tumour, on the left side of the chest, for one quarter of each hour during the day. On the 16th of April the cough was rather worse, and he was ordered to resume the iodide of potassium in twenty-grain doses three times a day. At this date the dimness of sight formerly complained of is reported better. On 24th April, the iodide was again discontinued, because of slight watering and weakness of the eyes. On 28th April, it is reported that the cough recurred with great violence during the preceding night, with great difficulty of breathing, loud snoring noise heard over all the chest posteriorly with a rattling in his throat; no dulness posteriorly, vocal resonance increased equally on both sides. Ice to be discontinued.

Ordered to recommence the iodide of potassium, in twenty-grain doses three times a day. On 29th April he was ordered—

℞. Spt. æth. sulphurici, ʒiii.; chlorodynii, ʒii.; decoct. senegæ, ℥vi. M.

Sig., One tablespoonful when the cough is troublesome.

30th April, the breathing is said not to be so difficult, his cough continues, the expectoration frothy and purulent. On 8th May, it is stated that the area of dulness remains unchanged; the sounds heard over it are, however, much diminished in intensity. and the blowing is scarcely audible. Percussion over the lungs is normal, but loud sonorous râles are everywhere audible, with prolonged expiration, especially on the right side posteriorly. The cough is not so harsh and barking as formerly, but it is now accompanied by a most copious purulent expectoration, especially at night. All his medicines to be stopped except the iodide mixture, and the following draught:—

℞. Chlorodynii, ♏x.; spt. æth. chlorici, ʒss.; mucilaginis, ʒi.; aquæ, ʒx. M. ft. haustus nocte sumendus.

On the 22nd of May, he was ordered a hot poultice, on account of a soreness in the chest, most felt after coughing. 9th June. Since last report he has continued much the same. He sometimes complains of pain in the chest, still has cough, with profuse purulent expectoration, and loud sonorous râles, both anteriorly and posteriorly. He still continues to take the sedative draught and the iodide mixture. Upon percussion, the dulness is found to have extended more towards the right side, now reaching to about the middle of the clavicle. On 23rd June, it is stated that the patient complains of great pain in the chest, which seems to be increasing, and for which he had poultices frequently applied. He also complained of great weakness, for which he got two ounces of port wine daily. His breathing was however easier, the cough and expectoration greatly diminished. The pulsations over the now greatly enlarged dull area are however increased, and the double blowing murmur is more distinct than formerly. Posteriorly, the blowing murmur can also be distinctly heard about the sixth dorsal vertebra. 26th June. Complains of pain in the left side being increased. Poultices ordered. 27th June. Still complains of great pain in his left side. Twenty minims of a solution, containing nine grains of hydrochlorate of morphia to the ounce, were injected subcutaneously over the painful part. He continued to improve slightly. On 16th July, it is stated that the patient feels very well, has little cough or expectoration; he takes his food well, and has very little pain. On 23rd July, it is stated that the patient continues better, his breathing easier, cough and expectoration almost gone, and for the last two or three days he has been getting up and walking about the ward, though still unable for any exertion, or even for much gentle exercise. He continues the iodide of potassium. At this time, Ward II. being shut for the autumn, he was transferred to my care in Ward VII. Shortly after being sent up to me, he walked through the whole ward to the water-closet, which is somewhat draughty, and back again, and was thereupon seized with a return of his cough, copious purulent expectoration, and violent pain in the left shoulder, and over the large pulsating tumour, on the left of which a small projection about an inch square was thrown out, over which there was a red blush. He was strictly confined to bed, a belladonna plaster applied over the tumour, with half a drachm of the iodide of potassium in infusion of chiretta three times a day, also,

℞. Syrupi scillæ, ℥ij.; spt. lav. co., tinct. opii ammoniatæ, āā ʒiv.; syrupi simplicis, ʒi.; aq. menth. piperitæ, ℥ij. M.

Sig., One tablespoonful every three hours, and fifteen minims of chlorodyne to be given additionally when required. In a few days he was relieved. The projection subsided, and he seemed going on favourably, but the annual cleaning of the wards then came on, and on the morning of the 13th of Aug., he was unfortunately permitted to walk down two stairs, each one storey high, to Ward No. I. This, however, he seemed to bear pretty well; he expressed himself as none the worse, but his cough was most certainly not thereby improved. Upon his return upstairs, a week subsequently, I had him carried in a chair, but the exertion, and possibly the somewhat damp air of the newly-washed ward, were too much for him; a violent exacerbation of his cough took place, accompanied by a great increase in the size of the tumour, which was covered by a red blush; there was complete loss of the pulse in the left arm, accompanied by coldness and excruciating pain of the limb; his expectoration was copious and purulent, and occasionally both streaked and stained with blood. The left arm was ordered to be swathed in flannel, to continue his cough mixture, to have also fifteen minims of chlorodyne p.r.n., to have his iodide mixture four times a day, and to have a large belladonna plaster applied over the whole tumour. For many days he took two drachms of chlorodyne daily, besides his cough mixture,—indeed, the orders were to give him a full dose of chlorodyne at once when required, so as at all hazards to keep the cough quiet. He bore this treatment well, his tongue kept clean, and his appetite fair; in eight days the expectoration began to lessen, and the cough and pain to cease. By the 31st of August they were almost gone, and the expectoration reduced to a trifling amount of mere mucus; the arm was again warm, and feeling like itself; the pulse restored to the wrist, though still very feeble; the tumour somewhat diminished in size, and apparently not pulsating so strongly; he was lying quietly in bed reading, and expressed himself as feeling quite a new man. After this he was kept constantly lying on his back in bed for the next nine months; for the greater part of this he was on a water-bed; he had occasional relapses of his cough, especially during the changeable weather of autumn and early winter, for which a tolerably free use of chlorodyne or other opiate was required; but there were no more threatening symptoms in regard to the aneurism, which continued steadily but slowly to improve. During all the next nine months, he continued to take two drachms of the iodide of potassium daily, with the exception of twice, when it was omitted for a day or two on account of gastric irritation, as evinced by pain and vomiting. At last, towards the end of May, the tumour seemed sufficiently consolidated, and all the other symptoms so moderated, as to warrant the patient's being allowed to get out of bed. Although he looked well and healthy, yet I considered it proper to prepare him for his exertion, by adding one drachm of the iodide of iron to his iodide mixture; this he took from the 18th to the 21st of May, when he was allowed to get up; the iodide of iron continued in combination with infusion of calumba, and the iodide of potash omitted. I find I have omitted to state, that when I first made up my mind to allow Jamieson to rise, finding his pulse rather more rapid than I liked, which I now believe was partly the result of a fearful joy, I put him for several days upon gradually increasing doses of tincture of aconite, along with his iodide mixture; this having been pushed as far as I thought proper, without any decided lowering effect, I then placed him, as I have just stated, upon the iodide of iron. At this time his pulse was 100, much fuller in the right than in the left arm; the skin moist; his cough so slight as to be inappreciable, never heard during visit; his expectoration merely a trifling catarrhal mucus; his voice is still thin, and somewhat feeble, but distinct, and very different from what it was; respiration everywhere natural, and the percussion sound posteriorly normal. Anteriorly, the apex beat is feebly felt between the sixth and seventh ribs, a little outside the nipple line, the heart being probably elongated, and certainly displaced, the lung covering it. Just inside of the left edge of the sternum dulness extends from the liver quite up to the lower border of the first rib. In the nipple line, dulness extends transversely to a distance of two inches from the edge of the sternum. Just at the inner edge of the left clavicle, there is a small patch of clear sound; with this exception, dulness extends along both clavicles, from about one inch and a half, to the right of the right edge of the sternum, to about four inches to the left of its left edge. The dulness on the right side is bounded by a semicircular line joining the sternum at the upper border of the second rib. On the left side the dulness is also bounded by a semicircular line, the centre of which is about the middle of the clavicle, and in this position it does not descend beneath the middle of the third rib. The sternal ends of both clavicles are dislocated, the right to the extent of half an inch, the left to about a quarter of an inch, on the upper part of the sternum; there is considerable puffiness, and over it, and over the dull portion to its left, the veins are enlarged and tortuous. A finger placed in the tracheal fossa feels a solid mass behind the sternum. Over the apex beat, the first sound of the heart is audible, somewhat obscured a by rough double bruit, heard loudest at the middle of the sternum, just at the junction of the fourth rib; this is propagated upwards loudly and roughly into both carotids, less so into the right subclavian, while over the left subclavian, in the dull portion already mapped out, we have a solid tumour, pulsating, but not very forcibly, and only with a movement of elevation, and none of dilatation, over which no bruit whatever is heard, merely a dull thud. The patient has now no difficulty in breathing or swallowing; he walks up and down stairs, and about the airing ground; he says he has now no cough. The aneurism seems still going on consolidating. I have again placed him for precaution's sake upon the iodide of potassium, but he is now ready, and I believe fit, to be discharged. I shall, however, protest against his testing his powers of procuring a livelihood for himself by a return to a laborious occupation. I sent this patient recently down stairs to Dr. Bennett, who exhibited him to his class, and, I am told, expressed himself satisfied with the reality of the improvement which had taken place.

[Several other cases equally interesting are reported by Dr. Balfour.]—*Edinburgh Medical Journal*, *July*, 1869, *p.* 47.

55.—A SUBSTITUTE FOR ACUPRESSURE.

By Dr. James Andrew Milne, Aleppo, Syria.

There are some cases in surgery where none of the modes of acupressure now employed seem to be applicable, and as deligation is not desirable, I have had constructed delicate forceps to use as a substitute. The body of the forceps is a little more than an inch in length, the two halves cross to furnish a grasping power to the beak—which is of delicate size, standing nearly at a right angle with the body—and in the one represented, three-fourths of an inch in length.

Its mode of action is simple and effective. The beak passes into the wound and clasps the vessel, bringing its two surfaces in contact, and then retaining them until adhesive inflammation takes place, and a firm clot forms. The body rests upon the surface, and is retained in place by a strip of adhesive plaster.

This mode may be considered applicable in all cases where acupressure is employed, and possesses the advantage of greater ease of application and removal. But its superior merits will be found in occluding vessels in their continuity. In applying a ligature, or acupressure, to an artery in its continuity, an incision has to be made of sufficient size to admit of the necessary manipulations, and lay the vessel bare to some extent, passing the ligature under the vessel; or in applying the mode of acupressure employed in these cases, it is disturbed from its bed, and by the two procedures separated to a considerable extent from the surrounding tissues, and its vascular connection cut off for some distance from the point of strangling. Softening and degeneration are the frequent results; and secondary hemorrhage, and many evil constitutional effects are produced.

By the use of the forceps only a small incision is required, and no larger surface of the vessel need be denuded than to admit of the passage of the beak of the instrument. The vessel is not disturbed from its connection with neighbouring tissue or vascular relation.

By thus creating but little injury to the vessel and its surroundings, we materially diminish the danger attendant upon these operations, and simplify the mode of procedure to so great an extent that the strangling of the carotid or femoral is an easy matter, and the occluding of the innominata, subclavian, vertebral, and iliac, much lessened in danger and difficulty.

The time necessary for the adhesion of the two surfaces of the vessel, and the formation of a firm clot, is from thirty to fifty hours, when the instrument should be removed. The wound, which was closed at first, is now freed from all foreign bodies, and left to accomplish a speedy cure.—*New York Med. Record, Feb.* 1, 1869, *p.* 551.

56.—ON THE USE OF CAUSTICS IN THE TREATMENT OF NÆVI.

By T. Holmes, Esq., Surgeon to St. George's Hospital; Surgeon-in-Chief to the Metropolitan Police.

[The following is from Mr. Holmes' recent work on "Diseases of Infancy and Childhood," second edition, Longmans and Co.]

"The use of the actual or potential cautery in nævus is very successful. I have repeatedly treated small nævi in exposed situations by passing a needle heated to a white heat in the blowpipe flame, into their tissue at various points, and I think this is a good way of treating those which are too thick to be dealt with by the use of the potential cautery:[*] for the latter penetrates only a very short distance at each application. But for nævi which are very superficial, no treatment, I think, answers so well as the repeated application of strong nitric acid. It should be applied carefully to the whole surface of the nævus, but not to the healthy skin around it, which may be defended with a layer of oil. The application of the acid substitutes a yellowish-white colour for the red of the nævus, and when the cure is complete it leaves a very slight depression of nearly the natural colour. It may require several applications, but rarely fails to cure nævi which are merely cutaneous. The application of potassa fusa will answer the same purpose, and as it penetrates deeper than the nitric acid, it is applicable to the treatment of thicker nævi; but it is much more painful, and leaves a more evident scar. These two substances answer their purpose so well, that I have not found it necessary to use any other of the potential cauteries.

"The electric-wire cautery is a very efficient and a very manageable form of the actual cautery, since it can be passed under a certain part of the tumour, and be gradually drawn out, dividing some of the vessels, and substituting a cicatrix in their place. Thus a portion of the tumour will be checked in its growth, and then another can be attacked. The plan is tedious, and the surgeon must be prepared for the possibility of hemorrhage occurring during the separation of the sloughs, but I have seen it successfully applied in the treatment of very large vascular tumours.

"Injection of the liquor ferri perchloridi is an efficient method of treating large nævi, and one which has the recommendation, when successful, of leaving hardly any visible trace of its action. But then it is not free from very serious dangers. It acts by coagulating the blood in the vessels, and thus obliterating them. Now if a large quantity of the liquid were thus thrown into a cavity of a vein of considerable size, and the blood in the vessels suddenly solidified, the most dangerous and even fatal symptoms might ensue. Cases of instant death under this treatment have been known; no doubt from the use of too large a quantity of the substance, and from the accident of its having been thrown into a large vein and there producing coagulation of a considerable quantity of blood, which had been carried direct in that state to the heart.

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[*] A very convenient and manageable instrument for this purpose has been introduced into practice by Mr. Wordsworth. It is a curved pointed metal stem mounted on a wooden handle, something like the old-fashioned tenaculum. A short distance from the point the stem swells out into a bulb. The bulb and point are heated to a white heat in the blowpipe flame and the point passed into the tissue of the nævus here and there. The heat of the bulb preserves that of the point, and obviates the rapid cooling which is the chief drawback to the use of the needle as described in the text. The "gas-cautery" invented by Mr. Bruce of the Westminster Hospital is also often convenient in the treatment of nævi.

"A case is also on record in which sudden death took place in injecting a nævus of the face with liq. ammoniæ."

In these remarks we fully concur. The perchloride injections are too dangerous to play tricks with. We have seen some narrow escapes with them.

There are few cases of nævus in which the temporary ligature, superficial or subcataneous, nitric acid, hot needles, or setons, will not effect a cure, with time and patience. The great rule is not to go too fast, and to remember and allow for the contractile properties of cicatricial tissue. Surgeons and parents alike are apt to look for rapid and immediate results; and unless the slower processes of nature be taken into account, too much may sometimes be done by not allowing the great healing element of time to bear its part in our work.—*Dublin Quarterly Journal, August*, 1869, *p.* 163.

57.—NÆVUS CURED BY INJECTION OF CARBOLIC ACID.

[The following extract is from a clinical report of the practice at the Meath Hospital and County Dublin Infirmary.]

Mr. PORTER exhibited to his class a child named Margaret B., aged ten months, who had been received into hospital, about six weeks previously, for the treatment of a large nævus, situated on the lower part of the forehead, immediately above the nose. It was venous in character, and when first seen was circular in form and as large as half-a-crown, projecting forwards considerably. He resolved to attempt its solidification and cure by the injection of carbolic acid, and accordingly two minims of pure acid were introduced into the nævus by means of a hypodermic syringe. Such inflammation as followed having been allowed to subside, the operation was repeated, seven times in all, an interval of several days being permitted between each injection. No untoward consequences took place; the skin was not injured; and now, after the seventh operation, the mass had become solidified, and would in due time be absorbed.—*Medical Press and Circular, Aug.* 18, 1869, *p.* 141.

58.—THE PIECEMEAL EXCISION OF NÆVI.

By FURNEAUX JORDAN, Esq., Surgeon to the Queen's Hospital, and Professor of Surgery in Queen's College, Birmingham.

[The operation described in the following article has been frequently practised by Mr. Jordan for the last six years.]

A incision is made through the superjacent skin and through the nævus, so as to completely divide it into two halves. Hemorrhage is prevented by pressure on the adjacent arterial trunks. In the face, for instance, where the operation is most useful, pressure on the facial or temporal or supraorbital, one or two or all, arrests the bleeding. If pressure on the main trunks do not perfectly arrest all hemorrhage, one or two points of pressure (with a director) near or even within the incision will. I have often been surprised to find that one or two points of pressure alone sufficed to secure a bloodless condition of a nævoid section. The next step is with clawed forceps and scissors (curved on the flat) to remove each half piecemeal, beginning at the centre, and proceeding to the periphery. There is not the least difficulty in distinguishing the nævoid (capillary, venous, or arterial) from the healthy tissue. The removal of one half should be completed before that of the other is begun. When the nævus is completely removed, there is no hemorrhage on relaxing the pressure. As a rule, it is quite unnecessary to remove any skin ; even if involved, it recovers after the excision of the subjacent nævus. If very much implicated, an elliptical portion of skin may be taken away, so that the edges of the wound can be so brought together as still as to leave only a line of cicatrix. Whether any skin be removed or not, the edges of the wound should be brought together with silver wire, and moderate pressure effected by means of a pad of dry lint and a bandage.

I believe piecemeal excision to be the best operation in all cases where its desirable to save the skin ; and these are the great majority of cases.—*British Med. Journal, May* 29, 1869, *p.* 490.

ORGANS OF RESPIRATION.

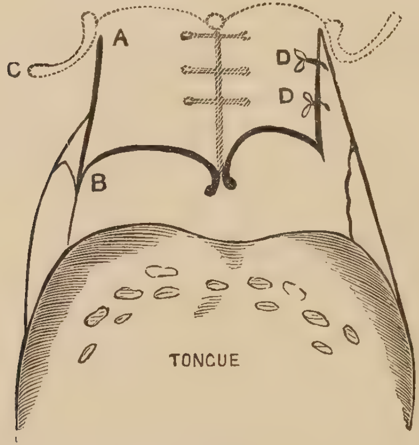
59.—NOVEL PROCEDURE FOR IMPROVING THE VOICE AFTER THE OPERATION OF STAPHYLORAPHY.

Case under the care of **Francis Mason**, Esq., at the Westminster Hospital.

Every surgeon who has had any experience of congenital cleft palate will, we believe, admit that the principal object for which the operation is usually undertaken—that is, the improvement of the voice,—is seldom attained. In the most favourable cases, however accurately the edges of the cleft may be adjusted, and and however well satisfied the operator may be with the result of his manipulative skill, the patients and friends invariably express some, and often a great deal of disappointment that the tone of the voice remains much as it was. A little consideration will suffice to show why the expected improvement does not take place. It should be remembered, that the condition of congenital cleft palate is not that of a mere slit or rent, but is an absolute want of substance in the part; and, in order to make good this deficiency, a "gusset," as it is termed, is required. Now, to make a gusset of living material seems difficult, if not impracticable; hence surgeons are contented simply to bring the edges of the cleft together, union being almost infallible if the muscles be divided in accordance with the plan recommended by Sir Wm. Fergusson. The result of the operation is that the two sides are necessarily put considerably on the stretch, and the soft palate, instead of being freely movable and capable of being brought by muscular action upwards and backwards against the posterior wall of the pharynx, remains as a tight curtain, so placed as to allow air to pass into the posterior nares, causing that peculiar nasal twang more or less constantly noticed in this condition. It therefore stands to reason that the voice cannot be materially altered or improved under such circumstances.

Mr. Francis Mason has devised, and has recently carried out at the Westminster Hospital, a novel and ingenious proceeding, having for its special object the improvement of the voice. Mr. Mason deals essentially with the soft palate, and assumes that the cleft has been already closed by a previous operation, and that sufficient time has elapsed so that the circulation between the two sides has become thoroughly established. He has reason to think that by freely dividing the soft palate on both sides, in the manner about to be described, partial, if not complete restoration of the normal voice may be effected. The object he has in view is so to release the soft palate that it may be brought more closely in application with the back part of the pharynx, and thus, to a certain extent, if not wholly, do away with the disagreeable nasal twang already alluded to. The subjoined diagrammatic woodcut, representing the isthmus of the fauces, seen from the front, will serve to illustrate the steps of his operation. The dotted lines indicate the edge of the hard palate and the hamular process on each side. The cicatrices of the sutures in the middle line of the soft palate, the result of the previous operation, are also shown.

The patient is placed in the recumbent posture, and may or may not take chloroform. The soft palate is completely transfixed with a sharp-pointed knife at A, at the inner edge of the hamular process (C), the outline of which may, in most cases, be distinctly seen in the living subject. The incision is carried downwards from A to B, dividing the whole of the soft palate. A similar incision is made on the opposite side, and the operation is completed by introducing, with a needle in a handle, one or more sutures from before backwards at D, hemming (so to speak) the anterior and posterior mucous edges, thus preventing the newly-made raw surfaces from uniting by granulation. In this proceeding the palato-glossus, palato-pharyngeus, and the tensor palati muscles are purposely divided. The levator palati is not interfered with, or at most only a few of its fibres are cut.



The case upon which Mr. Mason operated is that of the boy, now aged six, whose palate he closed without cloroform in October last (see the Lancet, Jan. 9th, 1869). The result is so far satisfactory that there is a decided improvement in the boy's voice. As this is the first patient upon whom this operation has been performed, it would be premature to form a strong opinion as to the probable results; meanwhile the operation seems to commend itself as being extremely simple, free from danger to important vessels, and not particularly painful—a lump of ice in the mouth for a minute or so would render it almost painless. Moreover, chloroform may be administered (as in this case), vomiting, if it occur, being no disadvantage. There is an ample supply of blood to this part, so that sloughing need not be apprehended; and further, it is a proceeding which may be undertaken at any period of life, and repeated as often as necessary, in case the cut surfaces should unite by granulation. Mr. Mason contends that it can do no harm; and if, on the other hand, it be attended with even partial success, it supersedes any mechanical appliance, and confers an inestimable boon on patients whose condition is distressing both to themselves and to those with whom they associate.—*Lancet, August* 7, 1869, *p.* 198.

ALIMENTARY CANAL.

60.—CASE OF STRANGULATED HERNIA, WITH PERFORATION OF THE BOWEL, IN WHICH THE OCCLUSION OF THE APERTURE BY LIGATURE WAS SUCCESSFULLY ADOPTED.

By Dr. Patrick Heron Watson, Lecturer on Surgery, Royal College of Surgeons; Surgeon to the Royal Infirmary and Chalmers Hospital, Edinburgh.

[The patient was a woman 60 years of age. She had a right femoral hernia, which was tense, tender to the touch, and the surface slightly reddened. It had been strangulated seventy-two hours. There were vomiting and other unpleasant symptoms.]

The condition of matters rendered an immediate recourse to operation imperative. Accordingly, having administered chloroform, I proceeded, with the assistance of Drs. Littlejohn and Bell, to operate in the usual manner. On opening the sac, a quantity of claret-coloured muddy fluid escaped, and on exposing the contents, which consisted only of bowel, and sponging its surface, we found it presented a dark-chocolate colour, with its glistening serous surface obscured by a white or rather ash-gray "bloom." The texture of the bowel was soft, and manifestly admitted of no rude handling. The probe-pointed bistoury was accordingly guided with the greatest gentleness beneath the stricture to the inner and anterior aspect of the neck of the sac, the bowel being protected by the fore and middle fingers, while the nail of the forefinger formed the director of the bistoury beneath the constricting ring. The slightest lever movement of the knife-handle made space so that the bowel became flaccid. On drawing gently upon the knuckle of intestine, it seemed adherent to the ring; but yielding to the gentle continued traction, an adhesion seemed to give way, and the knuckle of bowel came down. At the same moment, with a crack like a bubble of air bursting, a puff of fœtid gas and a gush of fluid fæculence escaped from the intestine on the level of the mouth of the sac. On washing the parts, the aperture of escape was found on the side of the bowel corresponding to the external aspect of the femoral ring, and close to the mesentery. It seemed like a transverse linear cut, a little more than a quarter of an inch in length, such as a thread might have made in the serous membrane, through which the ulcerated mucous and muscular coats along the whole line of constriction were obviously exposed. Puckering together the peritoneal coat with a pair of dissecting forceps from around the small aperture, I secured it with a ligature tied with a double knot, which, while applied with sufficient firmness to prevent its slipping, was gently tightened so as to avoid further cutting by the ligature of the tender serous membrane.

After again carefully cleansing the bowel, I returned it within the abdominal cavity; the ligature, however, was left hanging out through the wound. Further, the patency of the sac was secured by stitching its divided margins to the edges of the cutaneous incision. The dressing consisted of a pad of tow supported externally by a folded towel, and retained by a spica bandage. The patient was now laid in bed, with the limb on the affected side raised in the flexed position on pillows.

A draught of 50 drops of laudanum was administered as soon as the effects of the chloroform had sufficiently passed off to admit of her swallowing; and a quarter of a grain of muriate of morphia in pill was ordered to be given repeatedly.

Within four hours all painful symptoms had subsided; the patient had also enjoyed several quiet sleeps, and taken from time to time a single spoonful of water or of milk. We desired that her food should consist of milk and beef-tea, with ice, but no solids; and even of those fluid articles of nutriment, she should have no more than a mouthful at a time.

28th February (five days after the operation). The wound has only once been dressed since the operation. To-day Dr. Littlejohn again visited Miss W. with me, and we found all the symptoms of abdominal tenderness quite subdued; the pulse quiet, the tongue moist and otherwise good, and the thirst moderated. On dressing the wound, I found the sac sloughing, and according cut out the sutures. The ligature still hung out of the wound. There was no fæculent smell, and no purulent discharge; the fluid exuding from the surface consisting simply of fœtid serosity.

4th March (ten days after the operation). Dr. Bell remarked that some fluid fæculence had escaped upon the dressing. The ligature still, however, remained in the wound, which, in the report with which he favoured me, he says, is beginning to granulate, the sloughing sac having separated.

9th March (fifteenth day after operation). No fæculent discharge to-day.

14th March (twentieth day after operation). To-day the ligature came away on the dressing. There has been no fæcal flow since last report. To have oatmeal-gruel three times a day.

21st March (twenty-seventh day since operation). To-day the bowels acted spontaneously, for the first time since the operation.

1st April. To-day the wound has soundly closed, no discharge of any kind showing upon the dressings.

Since last report the patient has not only been out of bed, but has been able to venture out of doors, and is now (21st April) perfectly restored to her usual health.

In the case I have narrated, I did not cut off the ligature close to the knot. Neither did I close the wound. In fact, I attached the divided margins of sac to the edges of the cutaneous wound, so as to maintain a patent communication with the cavity of the abdomen, and a free channel of escape for purulent or intestinal matters. The ligature I purposely left hanging out of the wound, that it might afford a guide for the fæculence, should it escape. The wound itself was dressed simply with a pad of tow, retained by a spica bandage, so that no impediment might exist to a free fæcal escape, should it come in quantity and with force, as is sometimes the case. No better commentary could be made upon the good effects of this mode of procedure, together with the careful restriction of diet to the smallest quantities of fluid nourishment, and the free administration of opiates, than to read by contrast Sir Astley's case, where the closure of the wound, the repeated administration of violent mercurial purgatives, and free bloodletting, was attended with violent fever, retention of urine, a tense and tender belly, great flatulent distention and delirium, relieved at once, when the stitches were cut out, by a copious discharge of pus from the wound.

If there be one thing more than another in the treatment of a strangulated hernia after operation, which, next to early interference, conduces to the success of the result, it is the abstinence from the employment of purgatives, and the somewhat free administration of opiates. Here the patient's bowels were not opened for nearly four weeks after the operation, and then this result was spontaneous, unless the oatmeal food can be supposed to have conduced to have procured their evacuation. Till this evacuation she had no solid food of any kind. The patient was very hungry during a considerable period of her convalescence, and grumbled somewhat at the strictly-limited dietary. By diminishing the quantity of fæculent material passing through the intestine, this meagre diet undoubtedly shortened the period during which the fæcal fistula existed, while the progress of the reparative changes were at the same time not delayed.

For the first week, Miss W. took a quarter of grain of morphia every two or three hours; during the second week she had the same quantity thrice a day; during the third week she had a pill only at bedtime; and after that period it was discontinued. To the heroic practitioner of former times, to whom the early evacuation of the bowels after the operation seemed the great object to be sought after, such non-interference may seem foolishness, and, possibly, the idea may even suggest itself that the obstructed condition of the intestines may have favoured the establishment of the fæcal fistula. Were it so, the fæcal disharge would not have ceased spontaneously before the bowels were moved, nor would it have lasted for only five days,—a duration of flow which, with its very limited amount, points to the separation of the ligature as the source of the escape.

Would it have been a wiser method to have adopted that mentioned as Sir A. Cooper's, by Mr. Teale and Mr. Erichsen, viz., cutting off the ends of the ligature close to the knot, by which, as in the case of wound, the detached ligature effects its escape by ulceration into the bowel? I think not; for if adhesion be imperfect, and fæculent or flatal escape be established, it is surely as well that a free channel of escape be provided than risk the fatal extravasation, which a complete or even partial occlusion of the neck of the sac from any cause might entail. A painful result, after an illusory period of convalescence.

No doubt, cases have been narrated where a portion of bowel with a small ruptured or ulcerated aperture in its parietes has been returned to the abdominal cavity without employing any measures for securing even a temporary closure of the opening. Such successes are however, no more worthy argument for the imitation of such practice than the few scattered cases where recovery in cases of unrelieved hernia has followed sphacelation of the bowel, sac, and integumentary tissues, should encourage us to neglect the ordinary operation for relief.

Practically, the adoption of this practice of applying a ligature around any small aperture in the intestinal contents of a hernial sac is not likely to be frequently repeated with success, especially in instances where the strangulation has existed for so long a period as sixty-three hours. But if Mr. Erichsen's statement is taken into account, viz., that accidental wounds of the intestinal contents of a hernia have occurred in the "practice of the best and most careful surgeons," that Lawrence, Sir A. Cooper, Jobert, and Liston, have all met with it in their practice,—then we may believe that this class of intestinal wounds may occur again, and the successful issue in this much more unfavourable condition may encourage less distinguished men, should they meet with such an untoward accident, to resort to this method of treatment, and to have a better prognosis than I should imagine their personal feelings, in the circumstances, would be likely to originate.—*Edinburgh Medical Journal, July* 1869, *p.* 12.

61.—RESULTS OF OPERATIONS FOR THE RADICAL CURE OF INGUINAL HERNIA.

Cases under the care of John D. Hill, Esq., at the Royal Free Hospital.

Occlusion of the inguinal canal is the object which is desired in every operation for the radical cure of an inguinal hernia, and however much surgeons may differ as to the *modus operandi*, this is the leading principle. In the respective contributions to this subject by Mr. John Wood, Professors Fayrer and Syme, MM. Bonnet, Watzer, and Gerdy, several most ingenious methods have been devised. It is therefore desirable, in a question of such practical importance, to record all cases which have been submitted to the curative process, in order that the kind of cases suitable for operation, and the relative merits and advantages of particular operations, may be made known.

The following notes are from Mr. Hill's case-book. The patients were severally operated upon after the methods which have been described by Mr. John Wood and M. Gerdy. The condition nine months and twelve months respectively after operation is given.

Case 1.—Henry C., aged 23 years, by occupation a labourer, was admitted into the hospital, June 8th, 1868.

History.—About three months previous to admission, while employed in lifting timber, he felt something suddenly give way in the right groin. This was followed by swelling and tenderness at the seat of injury; the latter, however, soon passed away, while the former continued to increase gradually, but always disappeared on his assuming the recumbent posture. Since the accident he had never been free from pinching pain in the bowels on attempting to lift even an ordinary weight; and at last, being quite disabled, he came to the hospital. He had never worn a truss.

Present Condition.—A hernial tumour about the size of a walnut projects at the external abdominal ring, which can be reduced by gentle pressure. When the forefinger is passed into the inguinal canal, invaginating the scrotal coverings, the margin of the internal ring can be distinctly felt. This is stretched towards the mesian line, while the external ring is drawn outwards, and thus the obliquity of the canal is reduced. On measuring its capacity, the forefinger and tip of middle finger can be inserted within the external ring. The hernial sac apparently contains intestine.

Treatment and Progress.—To-day (June 12th), afer the bowels had been freely relieved by a purgative, Gerdy's operation was performed in the following manner:—The patient being in the recumbent posture, the right forefinger of the operator was passed into the inguinal canal, tucking up a sufficient quantity of the scrotum to prevent any tension or dragging upon the suspensory wire when inserted. He was then requested to cough sharply, and by the impulse thus communicated the intestine was found well guarded by the finger. Next, a strong curved needle, armed with a strout silver wire, was guided along the finger, and thrust through the invaginated scrotum, conjoined tendon, and inner pillar of ring, transfixing the integument an inch above Poupart's ligament. The needle, having been disengaged, was now attached to the lower end of the wire, and again guided along the finger through the invaginated scrotum, outer pillar of ring, and integument, appearing just above Poupart's ligament. The wire was now made tense, and retained so by an assistant, whilst a coil of strapping, of the thickness of a No. 12 bougie, was attached to either end, and rolled home. A pad and spica bandage completed the operation, after which he was removed to bed, and ordered twenty minims of tincture of opium.

June 13th. Complains of pain in the course of the inguino-cutaneous nerves. Ordered twenty minims of tincture of opium every four hours.

14th. Better. Pain snbsided after the second dose of opium.

15th. There is considerable thickening in every direction around the wire (lymph deposit), and slight oozing of pus from the wire holes.

19th. Thickening is much increased; removed the wire; bowels relieved.

25th. Thickening lessened; wire holes healed.

30th. Invaginated scrotum seems pretty secure; no protrusion on coughing while standing upright, and but slight impulse.

July 15th. Occlusion of the inguinal canal is now very complete. On making traction upon the scrotum, the invaginated portion is firmly held in position by adhesions.

July 24th. Discharged, but instructed to wear a light truss on resuming laborious work.

June 30th, 1869. Invaginated scrotum remains intact. He follows a light occupation (messenger), and does not wear a truss, except when called upon to lift.

Case 2.—John B., aged 17, a weakly, attenuated boy, was admitted into the hospital on the 19th of October, 1868.

History.—He has generally enjoyed pretty good health, although he was never capable of much hard work. Some time ago noticed a fulness in the left groin; and about two months previous to admission, during a sharp attack of coughing, felt something give way there. This was soon afterwards followed by a swelling, which increased on lifting or otherwise exerting himself; and he became much troubled with pain and uneasiness in the belly. Had never worn a truss.

Present Condition.—The abdominal walls are exceedingly thin, and there is a tendency to rupture an inch above the umbilicus, at the umbilicus, and in the right groin. In the left inguinal region is a hernial tumour, about the size of an egg, containing intestine. This can be easily returned. The obliquity of the canal is so considerably reduced that the inner half of the internal ring corresponds to the outer half of the external ring; and thus the hernia has become almost direct. This appears to arise rather from the yielding nature of the structures than from the application of any extraordinary amount of force. The ring margins are very thin and elastic, and the boundaries of the inguinal canal easily defined.

Treatment and Progress.—The bowels having been previously relieved by an aperient, chloroform was administered on October 28th, and Mr. John Wood's operation performed as follows:—An incision about an inch in extent was carried through the skin of the scrotum over the fundus of the sac. The skin was next separated from the fascia, and the invagination of the latter carefully effected. A needle armed with strong silk was then passed through the invaginated fascia, conjoined tendon, and internal pillar of the ring; next though the fascia and external pillar; and, lastly, through the fascia, triangular aponeurosis, and internal pillar. Thus a loop and two ends were seen appearing externally at one aperture in the skin—the loop passing through the external, the ends through the internal pillar of the ring. The operation was completed by threading the lower end through the loop; and after drawing together the margin of the ring, so as to hug the cord, the ends were tied together over a coil of strapping; and, lastly, a pad and spica bandage were applied.

October 29th. Complains of pain in the course of the inguino-cutaneous nerves. Ordered twenty minims of tincture of opium.

November 1st. There is some thickening around the ligature, and slight oozing of pus along it; is now free from all pain.

3rd. Thickening is increased; wound is nearly healed.

5th. Wound is healed; ligature removed.

14th. While standing erect, no preternatural impulse is felt on coughing. Ordered to wear a pad and bandage.

20th. Cicatrix is firm, and all thickening is absorbed.

28th. Discharged sound.

December 20th. Is now able to follow his employment without any support. Is, however, instructed to wear a light truss when lifting or doing heavy work.

On July 17th, 1869 (nine months after the operation), he attended at the hospital. There had been no return of the rupture; indeed Mr. Hill says the inguinal canal seemed to offer more resistance on coughing than the muscular walls generally. The patient wears an elastic abdominal support, and occasionally (*i.e.* before lifting weights a light truss.

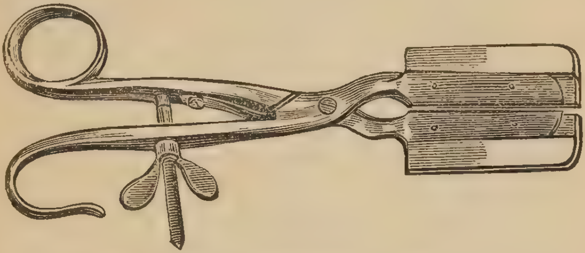
In these cases Mr. Hill carefully determined the following points previous to the operation: 1. The age, occupation, habits and state of health of the patient. 2. The variety, condition, situation, and size of the hernial protrusion, with the course and dimensions of the canal. 3. Its cause, whether congenital, gradual, or sudden. 4. The amount of care which the patient could ensure after the operation. Both patients were young, healthy, and temperate, and they had a fair prospect before them as regards suitable employment for the future. In case 1 the simpler operation was selected because of the smaller size of the hernia, its recent date, and sudden cause; while in case 2 the more complicated operation was chosen because of the larger size of the tumour, the dilatability of the inguinal canal, and the more direct course of the hernia.—*Lancet, Aug.* 7, 1869, *p.* 198.

62.—DESCRIPTION OF AN IMPROVED HEMORRHOIDAL CLAMP.

By Henry Smith, Esq., Assistant-Surgeon to King's College Hospital.

Some twelve months since I introduced to the notice of the profession, through the pages of the Lancet, (see *Retrospect*, vols. lviii, pp. 215, 217, and lvi, p. 274), a modification of the hemorrhoidal clamp, consisting of the addition of a plate of ivory to the backs of the metal blades of the instrument. At that period I had tried the clamp so modified in a sufficient number of cases to lead me to see that this addition of the non-conductor of heat was a very great improvement. The further experience of a large number of cases, both of hemorrhoids and prolapsus, has convinced me that the clamp should never be constructed without the ivory plates; for in those cases where it is not desirable to exhibit chloroform, or where patients will not inhale it, if one of these instruments be used, the actual cautery may be applied so that it is impossible for the patient to know what is being done. And the object of the communication is to show how this has been effected.

It will be remembered that when I first employed the ivory lining it was made simply to cover the lower surface and the sides of the blades of the clamp; but some little time since I requested Mr. Matthews to extend the ivory beyond the limits of the clamp, on either side and at the upper extremity of the blades, for half an inch. (See Fig.) By this means the non-conducting surface is very much increased, and unless the cautery is applied very carelessly, or kept in contact with the instrument an inordinate time, it is impossible, as I have above stated, for the patient to know when the hot iron is being used.



As a somewhat amusing illustration of this fact I may mention that recently I was operating on a very severe case of internal hemorrhoids, and the patient had beforehand expressed great dread of the cautery; but I had assured him that in all probability he would not know when I applied it. After I had used it very freely, and finished the operation, my assistant went to the fireplace to take out the cauteries. The patient, catching sight of these formidable tools, immediately began to exclaim vehemently that I was going to apply the iron. His astonishment and gratification may be imagined when I told him that the process was finished. This little incident by itself shows the value of the ivory plates.

Of course, if chloroform be used it is not necessary to employ the clamp with the ivory blades, although I would recommend that the instrument should always be constructed with this addition.—*Lancet, August* 7, 1869, *p.* 197.

63.—ON CANCER OF THE RECTUM.

By Holmes Coote, Esq., Surgeon to St. Bartholomew's Hospital.

The rectum is not infrequently the seat of carcinoma, and as in other parts of the body, so in this, either soft cancerous growths may spring from the mucous membrane, or cancerous matter may be infiltrated among the tissues of the bowel, producing a general induration and thickening, accompanied by a narrowing of that part of the tube. We have in the museum a specimen in which distinct masses of soft, spongy, medullary substance have grown from the mucous membrane for about three inches above the anus; another in which, at about a similar distance from the anus, the greater part of the circumference of the intestine is occupied by a firm medullary tumour growing from beneath its mucous membrane. The mucous membrane is healthy. The tissues around that part of the rectum which is occupied by the morbid structure are thickened and condensed. The lymphatic glands behind the rectum are enlarged, and filled by a substance similar to that of which the tumour is composed. The patient, from whom this specimen was taken, was a woman of forty years, who died extremely emaciated, with medullary tumours in the liver and other parts, and who had made no complaint leading to a suspicion of disease of the rectum.

Infiltrated cancer, sometimes called "fibrous," approaches in character scirrhus of the breast. It may occupy at its commencement only part of the circumference of the intestine, where, its progress being slow, and a compensating dilatation being allowed by the unaffected portion of the tube, it may exist for a considerable time without interfering with the action of the bowels; nevertheless it sooner or later involves the neighbouring structures—the bladder or the vagina may become adherent, and similarly affected, or the rectum become fixed to some part of the pelvis.

A case of melanotic cancer has been recorded by Demarquay (*Journ. de Med. et de Chir.*, vol. xxxii., part 9). A tumour, the size of a hen's egg, protruded from the back of the rectum, above the internal sphincter. Demarquay detached the sphincter from the coccyx, and cut off the back of the rectum with the tumour, which he pulled down with a forceps. The bowel was then stitched to the skin, in order to avoid infiltration of the surrounding tissues by the fæces. Notwithstanding that several arteries were tied, so much blood was lost during the day that plugging was necessary. The patient died of exhaustion on the second day.

The usual seat of cancer is about two inches from the anus to the sigmoid flexure of the colon, and the disease is attended by such an amount of progressive narrowing, that often a passage of only a few lines diameter remains. In these cases the patient often obtains temporary relief by the ulceration and breaking down of the cancerous knots and deposits; the passage of the bowel is widened for a time, and the discharge of fæces is rendered easier. In other cases an artificial passage is formed between the healthy portions of bowel above and below the seat of disease—a tortuous, perforated, fibrous passage results, which in some degree obviates the distressing symptoms which would result from complete obstruction.

But in all cases the disease has a fatal termination. The patient may die from inflammation of the distended bowel, or general peritonitis; or from progressive marasmus; from a high state of tympanitis, interfering with respiration; there may be symptoms of fæcal vomiting, gradually increasing in severity.

It is said that inflammation of the bowel above the seat of stricture ensues as a consequence of pressure of the impacted fæces, and blocking of the blood-vessels. It involves all the tunics, and is characterised by enormous hyperæmia of all the vessels, and by a deep blue, or black hue of the gut itself. Both the mucous membrane and the sub-mucous tissues are infiltrated with the usual products of exudation, and often so as to become discoloured, soft, and friable masses. Peritonitis commences here, and spreads over the entire membrane.

The treatment must of necessity be only palliative; but we may soothe that which we cannot cure. A tube introduced through the stricture, by means of which the bowel may be washed out with warm water, gives an amount of ease to the patient which will be better understood when the effect of the mechanical impaction of the hardened fæces is brought to mind. With this warm water some preparation of opium may be mixed; or the same drug may be used in the form of a suppository. In some stages of the disease a bougie, carefully introduced, has relieved symptoms; and in all cases the proper regulation of diet is an essential indication.

Discharge from the rectum is often very offensive in odour during the stage of carcinomatous ulceration. The employment of Condy's fluid, and of other disinfectants, is here strongly indicated.

The idea that cancer of the rectum is in any stage a mere local affection is no longer entertained by any well-educated surgeon.—*Medical Press and Circular, May* 19, 1869, *p.* 409.

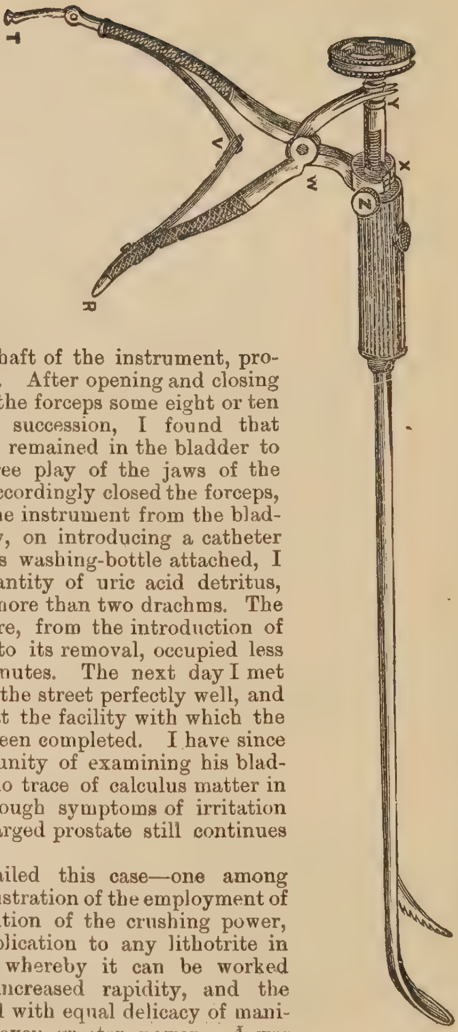
ORGANS OF URINE AND GENERATION.

64.—LITHOTRITY, WITH A NEW LEVER LITHOTRITE.

By Dr. Patrick Heron Watson, Lecturer on Surgery, Surgeon to the Royal Infirmary and Chalmers Hospital.

[A year before the operation which is the subject of the following paper, Dr. Watson had crushed a calculus fully the size of a pigeon's egg in the patient's bladder. His symptoms were so much relieved that he would not permit any further interference at that time. The patient was 80 years of age.]

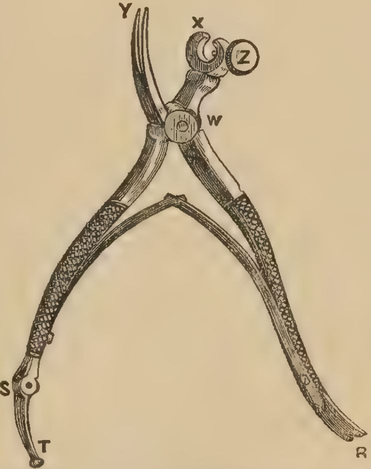
FIG. 1.



On examining the bladder with a converted lithotrite of Messrs. Weiss's pattern, I at once seized a calculus behind the prostate, which measured eight lines upon the scale, and, on adjusting the lever forceps to the shaft of the instrument, proceeded to crush. After opening and closing the handles of the forceps some eight or ten times in rapid succession, I found that nothing farther remained in the bladder to obstruct the free play of the jaws of the lithotrite. I accordingly closed the forceps, and removed the instrument from the bladder. And now, on introducing a catheter with a Clover's washing-bottle attached, I removed a quantity of uric acid detritus, amounting to more than two drachms. The whole procedure, from the introduction of the lithotrite to its removal, occupied less than three minutes. The next day I met this patient in the street perfectly well, and in great glee at the facility with which the crushing had been completed. I have since had an opportunity of examining his bladder, and find no trace of calculus matter in the viscus, though symptoms of irritation due to the enlarged prostate still continues to exist.

I have detailed this case—one among several—in illustration of the employment of a new modification of the crushing power, capable of application to any lithotrite in common use, whereby it can be worked with greatly-increased rapidity, and the result attained with equal delicacy of manipulation and even greater power. I was led to invent this lever power in the end of last year, in consequence of a case which occurred in my practice in the autumn. The patient was an exceedingly irritable man, with a uric-acid calculus rather too large for lithotrity, but who insisted that lithotrity should be performed, and who could obviously ill bear any frequent repetitions of the procedure, or any long-continued application of the instrument in the ordinary way. The difficulty was in his instance overcome by the employment of chloroform, whereby the stone was crushed at one sitting; but the importance of some more rapid means of applying the crushing power, as suited to such exigencies, forced itself strongly upon my mind.

Fig. 2.



I accordingly devised the application of leverage by means of moveable forceps, adapted to each blade of the lithotrite, in such wise that the closing of the handles might approximate the jaws of the lithotrite, and the opening of them, effected by a spring between their shafts, might cause the jaws to gape. The alternate movement of the jaw thus came to resemble a chewing motion, by means of which I found fragments might be safely reduced to detritus with far greater rapidity than by any other movement. I also found that the movement was quite as steady and quite as powerful as that effected by means of the screw.

The accompanying woodcut (Fig. 1) shows the entire instrument with the lever-forceps attached, and open to their full gape. The lithotrite is that usually known as Weiss's. Its peculiarity consists in the fluted handle containing the female catch screws, which are made to project and seize the male screw rod by means of the gliding slot projecting from the upper surface of the instrument.

In employing this lithotrite the surgeon stands on the right side of the recumbent patient, and introduces the instrument into the bladder with the jaws closed, and without the lever-forceps. Rotating the instrument through rather more than a quarter of a circle, right or left, after having opened the blades in the middle space, he closes them gently, and in all probability at once secures the calculus or the fragment. He now closes the slot so as steadily to hold the stone in the jaws till the lever-forceps are applied. When they are secured in position, on reversing the slot, the alternate closing and opening of the handle-shafts of the forceps crushes fragment after fragment; and the portions falling immediately below the jaws as the larger fragments are broken down, a slight increase of the rotation of the lithotrite brings the smaller portions within the grasp of its jaws, till nothing but a detritus is left, which can easily be washed out by the Clover apparatus.

The lever-forceps are shown apart from the lithotrite in Fig. 2. One blade terminates in a circular collar X, the other in the fork Y. The collar X encircling the extremity of the female blade of the lithotrite, is held steadily in position by the pinch-screw Z, and prevents the slipping of the collar, while, unless screwed up too much, it does not interfere with the rotation of the lithotrite within the collar. The fork Y plays upon the thinned portion of the male blade of the lithotrite. The elliptical spring which opens the blades is shown at V. A spring-catch is shown open at S T (Fig. 2), by which the blades, when closed, are kept so by the extremity T holding between the fork at R.

These instruments have all been made or converted for me by Mr. Young, the eminent surgical-instrument maker of this city.—*Edinburgh Medical Journal, June* 1869, *p.* 1069.

65.—SOME OBSERVATIONS ON THE OPERATIONS FOR EXTRACTION OF STONE PERFORMED AT THE LEICESTER INFIRMARY,

CONTAINING A STATISTICAL ACCOUNT OF THE LATERAL AND MEDIAN METHODS.

By THOMAS W. BENFIELD, Esq., Senior Surgeon to the Infirmary.

Sir H. Thompson gives a table of 1827 cases of lateral lithotomy, with 229 deaths, or 1 in 7·977—nearly 1 in 8; and I am gratified to find that the Leicester Infirmary ranks second only to Cambridge. But I will mention all the hospitals with their results.

It is but just, however, to say that such a table is incomplete without more detailed statistics as to age, &c.

Mr. Martineau, of Norwich, is reported to have operated on 84 cases, with only 2 deaths (Sir H. Thompson); and I am informed by my friend Mr. Fullagar that his operation was by the lateral method, with curved staff and knife, and by dilatation of the prostate with the blunt gorget.

	Cases		Deaths.		
Norwich (Crosse)	669	...	91,	or about	1 in $7\frac{1}{3}$
Since that time...	124	...	15	,,	1 in $8\frac{1}{4}$
Oxford	110	...	14	,,	1 in 8
Leicester	90	...	8	,,	1 in 11
Leeds	29	...	4	,,	1 in $7\frac{1}{4}$
Birmingham	102	...	10	,,	1 in 10
Guy's Hospital...	230	...	33	,,	1 in 7
St. Thomas's Hospital ...	200	...	29	,,	1 in 7
University College Hosp.	90	...	12	,,	1 in $7\frac{1}{2}$
Cambridge...	183	...	13	,,	1 in 14
Total	1827	...	229		

Mr. Allarton records 139 cases of median lithotomy, at all ages, with 13 deaths (Sir H. Thompson), or 1 in $10\frac{9}{13}$.

"De Borsa declares that of 100 cases operated upon by him and Manzoni, by the latter's median method, only one died, and that from causes irrespective of the operation" (Mr. Allarton).

The operations performed at the Leicester Infirmary by the present surgical staff, and not included in Sir Henry Thompson's table, are as follows :—Median operations, 57, with 3 deaths, or 1 in 19; of these, 9 were adults, or above 17 years of age: the deaths were two adults and one juvenile. Lateral operations 12, of which 11 were cured, and 1 adult died, aged 67. The grand total is 69, with 4 deaths, or 1 in 17. The result is, in median operations, 1 death in 19; in lateral operations, 1 death in 12. And comparing these with the statistics of the Leicester Infirmary given in Sir H. Thompson's table, all of which operations were lateral, it stands as 1 to 11 in that table, and 1 to 17 in our mixed operations subsequently performed; but in taking our median alone, as 1 to 19 against 1 to 11 lateral.

To economise time, I will not enter into further comparison of the two methods, but rather refer you to my statement, because I believe that the Italian and its modification in the median, or Allarton's method, have not had the due consideration by the profession to which they are entitled.

I do not regret to say that I have had very few opportunities of judging whether or not the prostate gland has been lacerated or overstretched in the extraction of stones by the median operation. I can only say that I have never had any ocular demonstration of that fact, nor have I met with any statement to that effect as proved by post-mortem examination; but this is a question which must be decided by experience.

When I consider the structures divided in the median operation, as compared with those divided in the lateral, and at the same time weigh the results of our smaller number of operations with the more generally adopted lateral, I think I have reason, in properly selected cases, to continue its use, and to bring it under notice as worthy consideration. In my own two cases which died the stones were not large, the extraction of them was easy, and there was nothing to lacerate the prostate; and in Mr. Marriott's single median death, abscess and peritonitis occurring suddenly at the end of three weeks, give but opposing evidence to the frequency of such a result.

Next, in respect to hemorrhage I must say a few words. In one case only out of 25 median operations have I had occasion to use the lithotomy tube or to ligature; but in one lateral out of 9 I was obliged to secure two vessels on account of sharp bleeding. Now I think it is but just and honourable to say why, in my opinion, the hemorrhage followed by death occurred in that median operation; and it was this: the perineum was deep, and I failed at first to hit the groove in the staff, and the blade of the knife passed by the side and beyond the urethra, probably wounding the artery of the bulb or some artery abnormally distributed. In no other case have I encountered primary hemorrhage which was not easily controlled, or in which I had occasion to ligature or to use the tube.

On referring to Mr. Marriott's notes, which he has kindly given me, I find that he had occasion to use the tube twice in his *median* operations, and both recovered; and in three cases there was smart hemorrhage, requiring ligatures; but in *two* out of his *three lateral operations* there was *severe hemorrhage*, requiring the plug, and one of these patients died from pyæmia in seven days, and in the third case there was free venous hemorrhage. I have once had secondary hemorrhage in a child, which occurred on the tenth and eleventh days after the median operation, and which was so severe as almost to threaten death. This was controlled by ice applied to the perineum and by the internal administration of gallic acid, and the child recovered.

Mr. Thomas Smith of St. Bartholomew's Hospital, in a paper lately published in the British Medical Journal, quotes 20 lateral and one median, all in children, in all of which he introduced the lithotomy tube; and he recommends its use in all cases as a preventive of hemorrhage. But, from my own experience, I think this unnecessary; and, if unnecessary, objectionable. Nevertheless, all his cases were successful.

In two or three cases I have observed, in my own practice, orchitis of one or both testicles following the median method, and which I do not recollect to have seen after the lateral operations. These somewhat retarded the recovery, but occasioned no further inconvenience.

In two cases, one lateral, the other median—liquid fæces passed per urethram; and in one of them, the lateral, flatus also escaped by the same passage. In the median it occurred in a boy 12 years old on the thirteenth day after the operation; in which case the stone was rough and large, and composed of oxalate of lime. In the lateral case, which was a complicated operation on account of the extraction of two large phosphatic calculi, combined with stricture of the urethra, flatus passed by the urethra at the end of three weeks, accompanied by liquid fæces. But both of these recovered completely without further surgical interference. In neither of these was the rectum wounded by the knife; but, as I infer, from sloughing occurring after the operation. In this latter case the man, aged 32, had been the subject of stricture for several years; and although I had dilated the stricture gradually for seven days prior to the operation, I was unable to introduce the curved laterally-grooved staff, and, whilst on the table, I first opened the stricture by Thompson's dilator, and then readily passed Aston Key's straight staff. The first stone, for there were two, was removed after prolonged careful extraction; but I was compelled to crush the second by the lithotrite, as it could not be extracted without using undue violence. And here I may remark, that this latter proceeding is one which Sir H. Thompson condemns as dangerous in a bladder entirely empty of urine; but with the exception of the sloughing before mentioned, and which in my opinion was entirely independent of the use of the lithotrite, no untoward symptoms followed, and the man recovered.

I ought to add, that upwards of thirty operations were performed by my late colleagues, Messrs. Paget and Macaulay, since the pear 1851; but I have been unable to obtain satisfactory details as to the method adopted, and therefore they are not included in my table.—*Lancet, July* 31, 1869, *p.* 156.

66.—ON EXTERNAL PERINEAL URETHROTOMY.

By Dr. J. W. S. Gouley, Professor of Clinical Surgery and of Genito-Urinary Diseases in the University of New York, Surgeon to Bellevue Hospital, &c.

After numerous trials of the various modes of external urethrotomy, and after a careful analysis of their defects and dangers, I have sought to devise a method by which the risk might be reduced to a minimum, and the steps of the operation rendered easy, safe, and certain.

It is the result of this endeavour which I now wish to submit to the profession.

The operation is as follows: the perineum having been shaved, the patient is etherised. The urethra is explored with a flexible bulbous bougie, of proper size, to ascertain the exact seat of the obstruction. The canal is then filled with olive-oil, and a capillary probe-pointed whalebone bougie is introduced into the urethra. If its point becomes engaged in a lacuna, it is withdrawn a little, and again carried onward with a rotary movement. If it enters a false passage, it is retained *in situ* by the left hand, while another is passed by its side. If this second guide makes its way into the false passage, it is to be treated precisely as was the first, and the operation repeated till one guide can be made to pass the obstruction and enter the bladder. Sometimes five or six guides are thus caught before the false passage is filled up and the natural route opened. I have frequently succeeded in thus reaching the bladder in very narrow strictures, supposed to have been impassable, and after all other means had failed. As soon as a guide enters the bladder—which may be known by the ease with which the instrument may be moved in and out—the other guides are withdrawn. The next step is to introduce a No. 8 grooved metallic catheter, with a quarter of an inch of its extremity bridged over so as to convert the groove into a canal, the bridged portion itself being also grooved. Its introduction is accomplished by passing through the canal the free end of the retained guide, then holding the latter steadily between the thumb and index finger of the left hand, and pushing the catheter-staff gently into the urethra, until its point comes in contact with the face of the stricture. The staff and guide are then kept in position by an assistant, who at the same time supports the scrotum. The patient is placed in the lithotomy position, and held by two assistants, or better, by the aid of Pritchard's anklets and wristlets.

The surgeon, seated on a low chair, first makes a digital exploration per rectum, to ascertain, as far as practicable, the condition of the membranous and prostatic divisions of the urethra; then he makes a free incision, in the median line of the perineum, extending from the base of the scrotum to within half an inch of the margin of the anus, involving only the skin and superficial fascia. The external incision, usually recommended in this operation, is from one inch to one inch and a half in length, but I believe that free external incisions here, as in lithotomy, are of decided advantage, as they expose fairly to view the subjacent parts, and tend to prevent subsequent infiltration of urine in the superficial layers. A few well-directed cuts having brought into view the urethra, the operator, with his finger-nail, feels for the groove on the bridged portion of the staff, and opens the canal upon this groove, longitudinally in the median line, exposing to sight the instrument. A loop of silk is then passed through each edge of the incised urethra, close to the face of the stricture, and held by the assistant in charge of the corresponding limb. This excellent contrivance, suggested and employed many years ago by Mr. Avery, of Charing-Cross Hospital, London, is of the greatest service, and ought not to be omitted, as it constantly keeps in view the median line. When the urethra is opened, and the loops are secured, the catheter is withdrawn a little, so as to bring into view the black guide; then the stricture, with about half an inch of the uncontracted canal behind it, is divided. This, I think, is best accomplished by means of the small knife, which I have modified from Weber's instrument for slitting the canaliculus lachrymalis. It is a very narrow, beaked, straight bistoury, about the size of a small probe, and is made to enter the stricture alongside of the guide, as if it were a probe, and the incision is done by directing the edge downward. The last step is to pass the catheter-staff, guided by the whalebone bougie, into the bladder; but should it be arrested in its course, the knife must be reintroduced, and the incision extended farther back. The operation is thus completed without unnecessary delay, the bladder is entered with the greatest gentleness; and, by the free flow of urine through the catheter, the surgeon is certain that the instrument has gone in the right direction, that he has divided the stricture thoroughly, and that he has not simply enlarged a false passage.

This method is, I think, particularly well adapted to cases where the urethra is deep-seated, or where there is great induration or tumefaction of the perineum, from old standing trouble, or from extravasation of urine. The presence, in the bladder, of the whalebone guide, so firm though so delicate; the assured position of the catheter-staff, compelled to follow the guide which lies in its terminal canal; the light thrown into the wound through the agency of the loops of silk, which constantly indicate the situation of the urethra, and of the median line; the ease and certainty with which the catheter-staff—still sliding over the guide—is made to enter the bladder after the incision; all seem to me to contribute to the success of the operation, in difficult cases especially, more than any other means which I have employed. Where the initial introduction of the whalebone guide is impossible, it may be passed through the perineal wound into the bladder, and the stricture divided as before; or Arnott's grooved probe may be used as a guide for the incision, and the whalebone bougie then passed along its groove. In either case, with the guide in the bladder after the incision, the point of the catheter-staff may be protruded from the wound, the free end of the guide carried through the terminal canal, and the bladder entered as before described.

When the state of the patient is such that the operation may be safely postponed, which can almost always be done when there is not impassable stricture with retention or extravasation of urine, I am in the habit of adopting, for a week or so, the following course of preparatory treatment:

The patient is confined, as far as possible, to the recumbent posture, and is directed to take a warm hip-bath every night. A diluent drink is to be freely used, ten drops of the tincture of chloride of iron taken three times daily, and five grains of quinine at bed-time. A suppository, containing one grain of the aqueous extract of opium, and half a grain of the extract of belladonna, is introduced into the rectum every night to allay spasm and procure sleep. Finally, the bowels are emptied, by the aid of a dose of oil, the evening before the operation. On the morning of the operation, an enema is given to completely free the rectum from fæces.

After the operation is concluded, and before the patient has fairly recovered from the effects of the anæsthesia, ten grains of quinine, with a quarter of a grain of morphia, are administered; and as soon as the nausea produced by the anæsthetic has subsided, a broth is given. On the following day, the diluent and iron are resumed, with the addition of three grains of quinine three times daily, and continued for two or three weeks. After four or five days, a warm hip-bath should be taken daily.

I believe that such a course of treatment is likely to prevent the occurrence of many of the unpleasant symptoms which sometimes follow the operation. The surgical after-treatment is at first similar to that observed in lithotomy. The scrotum is supported by a suspensory bandage, to guard against any possibility of infiltration of urine into its connective tissue, and the patient is kept on his back. Generally, the first time he urinates, most of the urine flows through the perineal wound; but afterwards, for forty-eight hours, all the urine escapes through the proper channel, from swelling and contact of the lips of the wound; as soon as the swelling subsides, and suppuration is established, a certain quantity of urine again passes through the perineal wound, but no harm ensues.

In the great majority of my operations, both of internal and of external urethrotomy, I have not followed the usual practice of tying in a catheter.

The wound is not disturbed, and no instrument is passed into the bladder until the second day, and then a full-sized, highly-polished, conical steel sound, of proper curve, is introduced, and the introduction repeated every third day, until the wound has healed—which takes place generally within four weeks—and then the patient is taught to pass the instrument for himself, and is advised to continue its use indefinitely.—*New York Medical Journal, Aug.* 1869, *p.* 450.

67.—CASE OF TRAUMATIC STRICTURE.

By Christopher Heath, Esq., Assistant-Surgeon to University College Hospital.

The method of treating stricture of the urethra by rapid dilatation or splitting, introduced by Mr. Holt, has been received with considerable favour in professional circles as regards the ordinary forms of stricture, but I have been surprised to find that many surgeons entertain a doubt whether strictures of a traumatic origin are equally amenable to this form of treatment. Having treated several cases of bad traumatic stricture, complicated with fistula, by this method with the greatest success, I venture to bring before the meeting the last of the series as a fair specimen.

All surgeons are aware of the serious nature of strictures resulting from rupture of the urethra, from falls on the perineum, even if the primary dangers connected with retention and extravasation of urine be safely surmounted. These strictures are extremely dense; in cases of long standing, even cartilaginous in structure, and they, therefore, owing to the non-vascular condition of the parts, are the most satisfactory cases to submit to urethrotomy, whether external or internal. Both these operations, however, possess dangers of their own into which I need not enter now; but I must for a moment institute a comparison between internal division and Mr. Holt's method, in order to mention a fact which has been but recently ascertained. In a patient who was the subject of stricture, and who died of fever before being submitted to operation, I assisted Mr. Holt to split the stricture in the post mortem room, and to examine the preparation, which showed a longitudinal rent in the stricture, as may be seen in the illustration to Mr. Holt's work. It was naturally concluded that a similar split occurred in the living subject, though neither Dr. Cruise, of Dublin, nor myself had been able to discover anything of the kind with the endoscope in patients examined a day or two after the operation. Recently, however, two different surgeons have had the opportunity of examining the urethras of patients upon whom they had operated shortly before, and they found that the mucous membrane was entire, and that merely the indurated submucous tissue or stricture proper was torn. This may not, of course, be the case in every instance; but it is certain that in many Holt's dilator does not tear the mucous membrane, and hence the very slight symptoms produced. In internal division, on the contrary, the mucous membrane must necessarily be incised; and the depth to which the submucous tissue is divided will depend upon the extent of knife protruded and not upon the full size of the urethra being attained.

In cases of traumatic stricture, complicated with fistula, my experience is that, if the urethra is restored to its natural calibre, the fistulæ close spontaneously; but it is possible that severe cases might require a touch with a hot wire to make them heal up.

Case.—Mr. W. H., aged 18, a midshipman, in June 1867, fell off the wharf at Trincomalee, astride the gunwale of his boat, and ruptured his urethra. He was landed and put under the care of a naval surgeon, who unfortunately died of an apoplectic fit the same day. Being consequently neglected, he got extravasation of urine, and his life was only saved by the arrival, on the following day, of a military surgeon, who made free incisions into the distended scrotum. He eventually recovered, with a fistula of considerable size behind the scrotum. He was taught to pass a No. 8 silver catheter for himself, and continued to do so for a couple of months; but then, being on active duty, unfortunately discontinued the practice.

The patient came to me on May 14th, 1868, in good general health. There was a minute fistulous opening behind the scrotum, from which pus exuded, and considerable thickening about the urethra in the neighbourhood. He passed water in a very small and twisted stream, which was occasionally forked. The urethra was so sensitive that he could not bear me to pass an instrument, and could not pass a No. 3 silver catheter for himself.

On the following day, under the influence of chloroform, I succeeded in getting No. 4 silver catheter though a tight stricture and then introduced the dilator and split up the stricture to the full size, passing No. 11. The patient passed a little bloody water three hours after the operation, and nearly clear water in the evening. He had a good night without any sleeping draught.

The day after the operation, he was a little feverish, and had a slight rigor; and finding that he had had jungle fever in India, I put him on quinine, in two-grain doses, and he had no further trouble. He passed water quite comfortably.

On the third day after the operation, I passed a No. 10 silver catheter easily, and he went out for a walk. The day following Nos. 11 and 12 were passed; and on the fifth day he passed No. 12 bougie olivaire with ease. The advantage of the olivary bougie over the ordinary one is that it is slightly conical, and also that the bulb at its extremity enables it to pass readily along the urethra without catching in the wall. I have found them most convenient after Holt's operation.

My patient continued to pass No. 12 for himself to the end of the week, and then returned to the country. A fortnight afterwards I heard from him that he was quite well and able to pass his instrument satisfactorily, and that the fistula had closed.—*British Medical Journal, July* 17, 1869, *p.* 55.

68.—ON A CASE OF STRICTURE, WITH ABSCESS IN PERINEO.

By John Adams, Esq., Surgeon to the London Hospital.

[The case to which attention was directed in the following clinical lecture, was one of abscess in the perineum arising from stricture. Such abscesses, however, often arise where there has been no actual retention, and they probably occur in the following manner.]

A patient is the subject of a bad stricture, which he neglects. Of course the urine is forcibly driven through the urethra by the muscular coat of the bladder, which is greatly hypertrophied. This is attended with a dilatation of the urethra just behind the stricture, and this dilated portion giving way, a small quantity of urine escapes, and abscess is the consequence. Or it may be that ulceration of the urethra occurs as a consequence of inflammation, and thus a small abscess being formed, this communicates of necessity with the urethra. Under these circumstances the urine is forced more and more into the perineum, and thus distends this part, and makes its way in that direction, where there is least resistance. Thus, your anatomy shows you that the *deep layer of the superficial fascia* adheres with such tenacity to the rami of the ischia and pubes as to prevent the urine from passing down the thighs. It does not pass around the anus, because the same layer of fascia unites with the anterior layer of the deep perineal fascia. The urine, therefore, passes forwards into the scrotum and penis, and occasionally as high as the hypogastric region of the abdomen. The treatment of such a case is well known to you. A free and early incision affords the only chance of relief to the patient; and if this is neglected, the scrotum and skin of the penis will slough, and death may occur. There must be no hesitation in this case, no dissection of parts to reach the extravasation gradually. No! You must at once thrust a pointed scalpel into the perineum, and give exit to the fluid, whether pus or urine, or both. I regret to say that such a line of practice is often neglected; and a very considerable share of a surgeon's practice consists in the treatment of such cases, possibly altogether misunderstood.

In cases of extravasation of urine occurring with abscess, it is very proper to pass a catheter, and a small elastic catheter is the instrument appropriate to such cases. But this often cannot be passed into the bladder; nevertheless, the urine will now escape by your opening, and you will possibly get a fistula in perineo, which you will treat *secundum artem;* or the perineum may entirely close up, and even the stricture may for a time be altogether lost sight of. But you ought not to allow your patient to lull himself into a state of fancied security. *Once a stricture always a stricture* is an axiom which ought to be always in the surgeon's mind, and which he ought to impress upon his patient.

The case before us is one of great interest, and aptly illustrates the early progress of cases I have alluded to; and is one where all the mischief I have described as the result of ulceration of the urethra and abscess has been prevented. It is plainly this:—The man came to the hospital with retention of urine, and the house-surgeon relieved him with a small catheter. The instrument was tied in, and was replaced in a few days by a larger catheter. In the progress of the case, however, an attack of inflammation supervened, accompanied with fever, and a tense swelling occurred in the perineum. The swelling extended upwards as far as the root of the penis, and the anterior part of the scrotum, where it joins the skin of the penis, was also swollen and tense. The urine had been freely passed with pain, and a sense of scalding. I passed a *small elastic catheter;* and, when it reached the swelling, some flocculi of inspissated pus escaped, mixed with blood. I still continued to push forward the catheter, which readily entered the bladder, and I drew off the remaining urine. But I did not stop here; I freely thrust a pointed scalpel into the tense perineum, and some healthy pus (if any pus can be said to be healthy) escaped. I tied the catheter in; and the house-surgeon has ever since attended to the case. The perineum is closing up, no urine having escaped through the wound. Had I acted differently, the urine must have become extravasated, and the usual category of symptoms would have succeeded. The catheter is changed about every third day, and there is no difficulty in passing one gradually increased in size. Elastic catheters are best adapted for cases like these; they find their own way if used with little force, and are readily insinuated through the urethra, rendered devious and irregular by the projection of abscesses and by ulceration.

I will now direct your attention to a class of cases by no means unfrequent, and which well exemplify what may be termed the early stage of the disease now under consideration, but in which retention of urine, ulceration of the urethra, and abscess in perineo may be prevented by suitable treatment. I will illustrate this subject by a case, and such cases are very common.

I was requested to see a gentleman who had retention of urine, the result of stricture in front of the bulb of the urethra. Ulceration had no doubt occurred, and abscess had formed just in front of the scrotum. I opened this, and passed an elastic catheter and tied it in; he soon got well. I lost sight of him for some years, when he sent for me in consequence of a swelling in the same situation, and great swelling of the scrotum, with pain and difficulty in passing his urine, without absolute retention. I did not doubt that ulceration of the urethra and abscess were about to ensue as before, but I thought I might anticipate, or rather prevent this, by the introduction of a catheter. I therefore passed a small elastic instrument into the bladder, and tied it in, and directed the patient to remove the stylet and draw his water off through the catheter three or four times daily. In three days I passed a larger instrument, and tied it in, still giving him the same direction as to the drawing off his urine. I changed the catheter again from time to time, with similar directions to the patient, and after three or four weeks the swelling had entirely disappeared, and he was so far cured—that is, he could pass his urine so well that he only came to me at long intervals, and after a few months ceased altogether to attend. You may ask, Was this patient cured? No; but he thought he was, and thought he knew better than his surgeon, for I told him that he ought to consider himself always the subject of stricture, and advised him to have a catheter passed occasionally; but very few patients will do this, and this gentleman is now under my care with a bad lengthened stricture, which I relieve by passing occasionally a catgut bougie. I could mention many cases of this description, and I dare say they very often occur to surgeons; but I would give you this advice: always use a small elastic catheter in such cases, and do not be too solicitous to pass a large instrument. Much error exists on this subject. One is apt to think that the larger the instrument the greater the chance of cure. I do not think so; indeed, I am sure that in the cases now under consideration the reverse holds good, and that moderately sized instruments are more suitable to the generality of urethras. I cannot assure you that the pathology of such cases, as I have described it, is in all cases the same. I suspect in some there is very trifling ulceration of the urethra, probably commencing in inflammation of a lacuna; but I can scarcely believe that abscess, however small, invariably accompanies this, or that any extravasation of urine happens, because there is no evidence of one or the other, and the swelling wholly subsides, without any escape of pus or urine, so far as I can judge; though I may be wrong. But wherever in a tense swelling you can distinguish fluctuation by careful manipulation, it is certainly your duty to puncture the swelling, as you may be quite certain that an abscess has formed, and that the matter must be allowed to escape. If, however, you allow your patient to pass his urine through the urethra where such swelling as I have described exists, you may be quite sure that ulceration and abscess will occur, and that the urine will become extravasated. I would remind you that the retention of a moderate-sized elastic catheter in the bladder can do no harm; whereas, if you allow the urine to pass through the urethra, now perforated by ulceration at the seat of stricture, you may be quite sure that some of the urine will escape from the canal, and will pass into the cellular tissue of the scrotum or perineum, or both.—*Lancet, September* 4, 1869, *p.* 331.

69.—TREATMENT OF URETHRAL STRICTURE BY FORCIBLE DILATATION WITH MR. B. HOLT'S INSTRUMENT.

By Dr. J. Fayrer, Professor of Surgery, and Senior-Surgeon, Medical College Hospital, Calcutta.

I have on former occasions described certain cases of stricture in which this mode of treatment was practised, and have expressed my impression that it is a valuable addition to our surgical resources in the treatment of this disease. It is unnecessary for me to repeat what I have already said generally in favour of forcible dilatation, but I may add that with greater experience I have acquired greater confidence in this mode of treating urethral strictures. The force which is necessarily used in the operation is suggestive of danger, and I confess that I had considerable misgiving as to its propriety at first; but I have now no hesitation in using the instrument, and I believe it to be generally attended with as little danger of causing constitutional mischief as may be the passage of an ordinary bougie through a tightly contracted and irritable stricture. I certainly have seen as severe an attack of urethral fever follow the latter as the former operation. In the Medical Times and Gazette of Aug. 18, 1866, I recorded three cases of stricture treated in this way, and in the Indian annals I have described three similar cases. In an address on Surgery to the British Medical Association, in speaking of urethral fever, March, 1868, I also described a case which proved fatal after the operation, and it is therefore unnecessary to recur to them. I shall, however give an abstract of other cases since treated, which serve to confirm the favourable opinion I have formed of the operation.

Case 1.—T. S., a Swiss cook of a ship, aged 52 years, a healthy looking man, admitted on March 4, with a tight irritable stricture of ten years' duration. For some time the ordinary treatment by dilatation was tried, but the progress made was very slow. On May 8, the stricture was ruptured by the passage of Holt's largest dilator. Very little bleeding followed, and comparatively slight constitutional disturbance. A full-sized catheter was passed immediately after the withdrawal of the dilator, and repeatedly afterwards until he was declared cured, on July 25.

Case 2.—L. A., an East Indian, aged 50, was admitted on July 27, with stricture of one year's duration. The urethra was strictured in two places—one in front of the scrotum, the other just in front of the bulb. He was otherwise in good health. The director having been introduced with some difficulty, the largest dilator was at once passed. A large catheter was passed immediately and daily afterwards. The constitutional symptoms were very slight, but he had incontinence of urine for some days. He rapidly recovered, and was discharged cured on August 8.

Case 3.—B. C. Gossamee, Hindoo, aged 40, admitted June 22, with stricture and urinary fistula, combined with scrotal elephantiasis. The stricture was very narrow, and just in front of the bulb. The stricture was split with the largest-sized dilator, and kept dilated with a full-sized catheter. The sinuses closed, and the scrotal tumour was then removed, from which having recovered, he was discharged.

Case 4.—S. C. G., a Hindoo boy, aged 5, was admitted on August 14, 1866, with a contraction of the urethra near the neck of the bladder, the result of lithotomy performed two years previously. The director having been introduced into the bladder, with some difficulty, the smaller dilator was passed, and a corresponding catheter was passed immediately after. He attended for some time as an out-patient, and appeared to be cured.

Case 5.—D. I., a healthy-looking young Hindoo, aged 24, admitted on September 3, with a stricture in the usual site. It was not very tight, nor of long duration. It was split with the full-sized dilator the same day, with comparatively little pain or hemorrhage. He would not remain in hospital. but attended as an out-patient for a few days until he was cured.

Case 6.—M. C. B., Hindoo, aged 60, a trader, was admitted on September 5, with stricture of some years' duration situated in front of the bulb. The director was passed with great difficulty;

and the full-sized dilator passed on the 8th He recovered rapidly, attending as an out-patient until he was cured.

Case 7.—E. S. an American, steward of a ship, aged 32 years, admitted on September 7, with a tight stricture of ten years' duration. The stricture was ruptured with the full-sized dilator. He would not remain, but attended as an out-patient until cured.

Case 8.—F. K., a Mahomedan servant, aged 44 years, admitted on March 11, 1867, with stricture in the usual situation of eighteen months' duration. No. 4 catheter was passed with difficulty on March 11, the stricture was spit with the full-sized dilator; this was followed by a full-sized catheter. He did well, and left the hospital on March 17, of his own accord.

Case 9.—A., a Malay khalassie, aged 25 years, was admitted on April 29, 1867, with a very tight almost cartilaginous stricture just in front of the bulb, of three years' duration. Catheters No. 2 and 4 were passed with great difficulty until May 2, when the stricture was at once split by the passage of the full-sized dilator. This was followed, as usual, by a full-sized catheter, which was passed daily until May 27, when he was discharged cured.

Case 10.—J. O., European, aged 36 years, admitted December 21, 1867, with stricture of ten years' duration, the stricture just in front of the bulb. It was split on December 24 with the full-sized dilator; this was followed, as usual, by a full-sized catheter (No. 12). He was discharged cured on February 15, 1868. On admission, catheter No. 2 was passed with difficulty.

Case 11.—R. B., Mahomedan, aged 30 years, admitted July 6, 1868, with stricture of six years' duration. Had several times been in great trouble from retention of urine. The stricture was split with the full-sized dilator on the 7th, and he was discharged cured on August 1, No. 12 passing easily.

Case 12.—W. A., sailor, European, aged 33 years, admitted on August 18, 1868, with stricture of eleven years' duration. The stricture came after gonorrhœa, was in front of the bulb, and very narrow. It was split with the full-sized dilator on August 22, and he was discharged cured on September 6, 1868. —*Med. Times and Gazette, July* 10, 1869, *p.* 45.

70.—ON THE TREATMENT OF RETENTION.

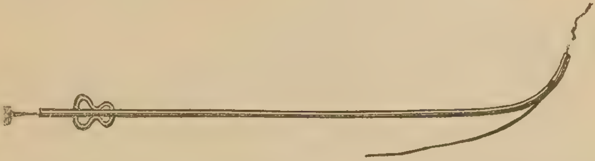
By Dr. J. W. S. Gourley, Professor of Clinical Surgery in the University of New York, and Surgeon to Bellevue Hospital.

[The following article is a description of a catheter which Dr. Gourley has lately devised for use in cases of retention of urine arising from stricture of the urethra, especially where there exists a false passage.]

The annexed figure represents, in reduced proportions, the instrument, and a portion of the guide, or conductor, passed through the canal at its point.

The catheter is three millimeters in diameter, nearly corresponding with No. 3 of the English scale, and is conical, its point being two millimeters in diameter, about equal to No. 1 of the same scale. A groove on its convex side extends a distance of four inches, and is bridged over in its last twelfth of an inch, so as to form a canal for the reception of a delicate whalebone guide. The catheter eye is on the concave side of the instrument, about three-fourths of an inch from its point, and is kept closed by a well-fitted stylet.

The curve of the instrument is equal to one-fifth of the circumference of a circle three inches and a quarter in diameter.



The manner of using it is as follows. With a small syringe the urethra is to be filled with olive oil, and an attempt made to introduce a probe-pointed whalebone guide, half a millimeter in diameter, and of the length of an ordinary bougie, the point of which may be made temporarily spiral by immersion in boiling water, then twisting around a small staff, and suddenly cooling it. If its point becomes engaged in a lacuna, it is to be withdrawn a little, and again carried onward with a rotary movement. If it enters a false passage, it is to be retained *in situ* by the left hand, while another is passed by its side. If this second guide makes its way into the false passage, it is to be treated precisely as the first was, and the operation repeated till one guide can be made to pass the obstruction, and enter the bladder. Sometimes five or six guides are thus caught before the false passage is filled up, and the natural route opened. As soon as the bladder is entered by a guide—which may be known by the instrument being easily moved in and out—the other guides are to be withdrawn, the free end of the retained guide passed through the canal at the end of the catheter, and this instrument carried down the urethra along the guide until its point reaches the stricture. Generally, with slight pressure in the right direction, the catheter may be made to enter the stricture, and finally pass into the bladder.

The guide may be kept in position after the withdrawal of the catheter, and dilatation carried on by the successive introduction of larger-sized catheters of the same construction: or divulsion may be resorted to by means of Mr. Holt's or Sir Henry Thompson's instrument, modified by means of the terminal canal for the passage of the guide; or internal urethrotomy may be practised with any of the various urethrotomes, having only this simple modification; or, as has already on several occasions been done, the retention catheter may be made available in external urethrotomy, instead of Mr. Syme's staff.—*Lancet, June* 19, 1869, *p.* 842.

AFFECTIONS OF THE EYE AND EAR.

71.—ON OPHTHALMIA NEONATORUM.

By J. Soelberg Wells, Esq., Ophthalmic Surgeon to King's College Hospital.

The first indication in the treatment of ophthalmia neonatorum is cleanliness. The infant's eyes should be washed directly after birth, and the greatest care be taken that the same sponges, cloths, water, &c., are not used for the mother and child. The latter should not be exposed to cold winds or draughts, or bright, glaring light, &c. If its eyes are red and irritable, and there is a little muco-purulent discharge, a weak collyrium of sulphate of zinc or alum (one or two grains to an ounce of distilled water) should be applied two or three times daily. But if the inflammation runs high, and the discharge is thick, creamy, and copious, stronger astringents must be employed. In out-patient practice, where we cannot see the patients daily, the use of the following injection will be found the best mode of treatment:—Sulphate of zinc, two grains; alum, four grains; distilled water, one ounce. Some of this is to be injected, with a small glass syringe, between the lids every fifteen or thirty minutes during the day, and every two or three hours at night; the frequency of the application and the strength of the injection varying with the exigencies of the case. Before it is employed, the eye should be cleansed with an injection of lukewarm water, so that the discharge may be washed away. Every day or two a drop of a strong solution of nitrate of silver (from four to ten grains to the ounce) may be applied. If only one eye is affected, the other should be protected against contagion by a firm pad of cotton wool and bandage, this being removed twice daily so that the eye may be washed. If the patient can be seen once or twice daily, I prefer to apply the mitigated crayon of nitrate of silver (one part of nitrate of silver to one or two parts of nitrate of potash) to the conjunctiva, as we can regulate and localise its effect better. The lids being well everted, the crayon is to be lightly applied to the palpebral conjunctiva, its action being at once neutralised by a copious application of salt and water. If there is great swelling of the conjunctiva, the latter is to be freely but very superficially scarified with a small scalpel directly after the neutralisation of the caustic. Then cold (perhaps iced) compresses should be applied to the lids, to diminish the inflammatory reaction, and assist in the contraction of the bloodvessels; but great care and circumspection are required in their employment, for if they are continued too long they may prove very injurious. If the edges of the lids are sore and excoriated, a little citrine ointment should be applied. When the disease presents the cyanotic character, and the discharge is thin and flaky, the nitrate of silver must be used with great caution. Wecker recommends small doses of mercury in such cases. Should the cornea become cloudy or ulcerated, atropine drops (two grains in an ounce of water) are to be used three or four times daily, the astringent treatment being continued as before. If the ulcer threatens to perforate, it should be pricked with a fine needle, and the aqueous humour be allowed to flow off very gently; this may have to be repeated several times. If perforation has taken place, and there is prolapse of the iris, the latter should be pricked with a needle, and on the aqueous escaping the prolapse will collapse, and then a firm compress bandage should be applied. It may be advisable to repeat the pricking of the prolapse several times. If the prolapse is large, it should first be pricked, and then snipped off with a pair of scissors. When the perforation of the cornea is extensive, and the lens is bulging into it, an incision should be made in the cornea and the lens be allowed to escape, a firm compress bandage being at once applied. We may thus succeed in saving a sufficient amount of clear cornea to permit of the formation of an artificial pupil at a subsequent period, and thus perhaps save a certain degree of vision.—*Lancet, Aug.* 21, 1869, *p.* 261.

72.—ON THE EMPLOYMENT OF TANNIC ACID IN SOME DISEASES OF THE EYE AND EYELIDS.

By Robert Hamilton, Esq., Surgeon to the Southern Hospital, Liverpool.

Phlyctenular ophthalmia, characterised by the appearance of one large pustule, or two or three smaller ones, at the edge of the cornea, each surrounded with a zone of vividly injected vessels, and accompanied with a considerable amount of intolerance of light, lachrymation, and pain, yields to three or four applications of the tannic acid. A more aggravated form of the same disease, phlyctenular corneitis, or herpes corneæ, in which the cornea has one or more pustules or vesicles situated near its margin, or studded on different parts of it, and the patient suffers greater pain, and the intolerance of light is greater, is also benefited by the daily dusting of the tannic acid upon the cornea. In these cases, however, as they generally occur in highly strumous children, the use of the tannic acid has to be combined with general treatment. The tendency to relapse is so common in this particular form of eye disease that we cannot depend upon local remedies alone. Tonics, especially cod-liver oil and quinine, are essential; these, with calomel, probably, form the most successful plan of constitutional treatment. To a child under six years of age, one-fourth of a grain of calomel to half a grain of quinine, given three times a day, and a fine spray of the tannic acid powder thrown upon the cornea once a day, for four or five days in succession, has, as a rule, proved sufficient to remove the disease.

There is a form of phlyctenular ophthalmia called by some authors fascicular corneitis, in which a number of minute blood-vessels are seen passing from the conjunctiva to the cornea, forming a triangle, at the apex of which is a pustule more or less near the centre of the cornea, and a cloudiness of the latter is observed immediately in advance, and surrounding the pustule. This disease is described by a late writer as extremely rare. It has not been so uncommon in Liverpool. I have seen several cases during the last three months, and mention the circumstance because this variety of phlyctenular corneitis is especially amenable to the tannic acid treatment. It occurs generally in young people and adults otherwise healthy, and requires nothing more than the daily application of the acid for a week or ten days to entirely remove it.

In granular ophthalmia, both acute and chronic, I have used the tannic acid with the best effects. In the acute and subacute forms, where upon eversion of the lids we find the conjunctiva highly vascular and swollen, the papillæ prominent with numerous granulations, the cornea covered with enlarged vessels, with haziness of its tissue in the interspaces of the vessels, and there is much photophobia and lachrymation, I have covered the surface of the palpebral conjunctiva—in other words, the granulations—and the papillæ, with a layer of the finely pulverised tannic acid, and then carefully inverted the lids, so as not to remove the powder in doing so, and repeated this treatment once daily for about five days in succession, and then increased the interval to two days and three days, and have found the granulations to subside rapidly, and contemporaneously with their doing so the enlarged vessels thickly studded on the cornea have contracted, and become more and more indistinct, and the haziness less evident, whilst the patient tells upon each occasion how much his sight is improving. In chronic granulations, cases of which present themselves in varying degrees of intensity, from the simple granulations on the palpebral conjunctiva, which have as yet produced no alteration of the cornea, to the more advanced cases in which repeated attacks of conjunctival inflammation have developed the granulations and rendered them more and more prominent, and so caused such an infiltration of the cornea, called pannus, as almost to obscure vision altogether; in each and all of these the use of the tannic acid has steadily diminished the granulations, and the vascularity of both cornea and conjunctiva, and improved the vision.

In two cases of pannus, at present under treatment, the upper half of the cornea is affected in the one case, and the lower half in the other. The latter has occurred in a youth of eighteen; his eye was similarly affected about eighteen months ago; he was at that time under my care, and the treatment then adopted was the occasional touching of the granulations with the sulphate of copper, and the use of the nitrate of silver ointment. He was at least three months under treatment. When he applied again about a fortnight ago, the lower half of the cornea and the inside of the lower lid were much more extensively altered in appearance than when he attended before, so that I can scarcely think the eye has been quite well in the interval, though he states it was up to month ago. The whole of the conjunctiva of the lower lid, when he presented himself, was highly granular and deeply injected to the very edge of the tarsal cartilage; there was slight trichiasis, a few hairs being turned somewhat inwards; the lower half of the cornea had numerous parallel vessels, running up beyond the level of the pupil, and the intervening spaces between the vessels were clouded. He could only distinguish the letters of No. 20, Jaeger's tppes. The tannic acid was applied daily for the first four days, and on alternate days since, and the eye has nearly recovered its normal appearance.

In the other case of pannus, a girl of 20 had been under treatment for three months before she applied at the dispensary ten days ago. The granulations were confined to the upper lid, and the upper half of the cornea was in the same condition as in the previous case. The palpebral conjunctiva of the affected lid had a glazed appearance near the retro-tarsal fold, with two or three cicatrices running lengthways. Towards the margin the granulations were prominent and abundant but pale. The same treatment adopted in this case has been followed with quicker results, for after the fifth application of the tannic acid the vessels of the cornea had almost entirely disappeared, and the latter is now quite transparent.

The mode in which I apply the tannic acid is by means of a small india-rubber ball with a glass nozzle; the latter is removed for the purpose of half-filling the ball with the tannic acid, and when the nozzle, which is of somewhat large calibre, is replaced, and pressure made upon the ball, a fine dust or spray of the powder is emitted. This is directed upon the everted lids, when granular, so as to cover them with a coating of the acid, and the lids are carefully inverted again so as not to disturb the the powder, and the patient is prevented from rubbing the eye. In pustular ophthalmia the lids are held apart and the powder spray sent directly upon the pustules. Much less pain follows the application of the tannic acid than occurs after most of the astringents at present in use. The slight irritation produced passes off in a few minutes. Children bear it much better than caustic.

Besides the positive benefit derived from the application of the tannic acid in granular inflammation, it possesses a recommendation which is of great value; its use does not tend to alter the structure or impair the efficiency of the palpebral conjunctiva in the way that the acetate of lead, sulphate of copper, and nitrate of silver do. The contraction and cicatrization of the conjunctiva which these metallic astringents promote, with the evil results arising therefrom—such as trichiasis, entropion, and pannus—are avoided by employing the vegetable astringent. The very principle upon which the sulphate of copper and the others mentioned are said to do good, is by the setting up of a certain amount of inflammatory action sufficient to produce absorption. Three of the most recent works on eye diseases may be quoted in confirmation of this. Thus Bader, at page 114 of his comprehensive treatise on the Human Eye, says that "the object of the application of the green-stone and other caustics is, not to destroy the granulations, but to excite such irritation in the conjunctiva as is best adapted to promote the elimination of the material of which the granulations consist;" and Soelberg Wells, in his recent work, says, at page 91: "These applications hasten the absorption of the morbid products by producing a temporary inflammatory congestion of the blood-vessels." Again at page 57: "The maintenance of a certain degree of inflammation of the conjunctiva is necessary and desirable, in order to produce and hasten the absorption of the granulations." And Henry Power, in his "Illustrations of some of the principal Diseases of the Eye," at page 211, considers "that the mode in which moderately acute inflammation effects a cure, to be by causing an effusion of lymph, which compresses and obliterates the vessels supplying the neo-plastic formation," and that "very high degrees of inflammation act prejudicially by causing an increased and fresh development of vessels which, in their turn, induce a return of the granulations in their worst and most intractable form." If, therefore, these substances act as irritants, it is impossible in actual practice so to watch their effect and regulate their action that only the requisite degree of inflammation is excited. It is more than probable that the very marked improvement often observed after the first application will be followed up, when the patient next presents himself, with a second use of the same remedy; and though after this the interval may be increased, yet in the majority of cases seldom less than four or six applications of the caustic is made use of according to the size and extent of the granulations.

If the amount of pain caused is a true measure of the extent of the temporary inflammation set up, then that induced by the use of nitrate of silver and sulphate of copper is not slight, for it often lasts many hours, and is generally described as being most severe, so much so that though the poor patient admits the benefit, he shrinks from the remedy.

Now, if so much pain, heat, redness, and swelling, follow the use of these irritants, we may be sure their application is not an unmixed good, but that certain alterations of structure are subsequently induced, such as destruction of healthy tissue and cicatrisation of portions of conjunctival membrane leading to a derangement of the functions of many of the parts concerned in this delicate organ. Experience proves that the improvement resulting from the use of sulphate of copper is most apparent after the first and second times of applying it, and that each succeeding application after that does not lead to progressive restoration to a healthy condition. The conclusion to be arrived at from this is, that the baneful effect of the styptic has begun to manifest itself and is creating new mischief.

The tannic acid acts apparently in a different manner from the foregoing. It does not seem to excite any inflammation; beyond a momentary disagreeable feeling, there is very little pain produced, neither is there any redness, heat, or swelling. Increased lachrymation for a few minutes is all that is observed. It probably acts by mechanically interfering with the flow of blood in the vessels, suspending it altogether in those of microscopic size, and thus the enlarged papillæ and the granulations, being deprived of their sources of supply, shrivel up. As a necessary sequence to this, the enlarged bloodvessels traversing the cornea lose the stimulus of the friction produced by the granulations; and their development at the first being due solely to abnormal action, they disappear when that action ceases.—*Practitioner, June* 1869, *p.* 346.

73.—HINTS ON THE TREATMENT OF IRITIS.

By Robert Brudenell Carter, Esq.

[The treatment of a case of iritis is so important, as the results of a mistake are disastrous to the eye, that the question "What is the earliest symptom of the disease?" at once suggests itself. Impairment of vision, with pain and uneasiness in the eye, diminished lustre of the external surface of the iris, and contraction of the pupil, not yielding without difficulty to atropine, are perhaps the earliest indications of the approaching inflammation.]

In actual practice, iritis is not frequently overlooked, and it may be well, before speaking of its cure, to lay down a simple rule for its detection. That rule is, that being one of the most important forms of ocular inflammation, it should always be present to the mind of the surgeon, *and should always be looked for in an inflamed eye.* If there, and if looked for, it cannot fail to be found. Something will depend, of course, on the way of looking, the first precaution necessary is to have a good light, so placed that the iris and pupil are not concealed or obscured by reflections from the cornea. From want of attention to this simple point, I have seen an error made by a very skilful and experienced ophthalmic surgeon. The patient being rightly placed, and the sound eye closed, the shadow of the surgeon's hand should be made to fall upon the affected eye, and to leave it suddenly, two or three times in succession. If the pupil dilate and contract quickly, all is well; if its movements are slow and uncertain, or restrained at any point of its circumference, atropine should be applied, and then iritis, if present, will be shown by irregularity of the shape of the dilated pupil, or even by its resisting dilatation.

It is possible that some might be in danger of mistaking acute glaucoma for iritis; but this error may always be avoided, by remembering that acute glaucoma is the only inflammatory disease of the eye in which the pupil is found dilated. Exception may, perhaps, be made with regard to cases that resemble glaucoma in their immediate cause; namely, the inflammations that are due to the increased tension produced by a growing intraocular tumour.

The disease once recognised, we are brought fairly face to face with the question of treatment; and, in the first instance, with the question whether there is still in operation any cause that can be speedily removed. An impacted foreign body, ciliary irritation propagated from the other eye, and the imperfect excretion connected with the lithic diathesis, are among the causes of this kind that are most probable, and that should be sought for. The two first would require, when practicable, to be removed by surgical operation, and the last by such eliminative medicines as the case might demand.

In the meanwhile the presence of the effect must not be forgotten. Even when clearly depending upon constitutional causes, iritis must not be left to the unaided operation of remedies calculated to remove those causes. The inflammation affects an organ so delicate and important, and may produce so much permanent mischief in a short space of time, that it must be subdued as speedily as possible by the aid of local treatment. For this purpose atropine is the chief agent. A solution of the neutral sulphate in distilled water, of the strength of from two to four grains to the ounce, must be dropped into the eye, at first at short intervals, as every hour, and when dilatation is produced, or in case the pupil after a few applications still resists dilatation, about twice or three times a day. Dr. Heymann, of Dresden, has advised, in severe cases, the application of a particle of solid atropia or of its sulphate to the tarsal conjunctiva, as being more certain and powerful in its action than any solution; and in some instances I have followed this practice with advantage. The precise method of application is, however, a matter of small importance, and the point to bear in mind is, that the use of atropine, in every case of iritis, whatever else may be done or left undone, is the one thing that should never be omitted at the commencement of the treatment.

It was at one time supposed by many, or even generally, that the chief value of atropine depended upon its power to dilate the pupil. There can be no doubt of the great importance of this mode of its action, by which the pupillary area becomes so much expanded, that, as a mere question of quantity, it is with difficulty blocked up by effused lymph, and by which any adhesions that have been formed are stretched and weakened, and thus placed under conditions favourable to their detachment and absorption. But in the most severe cases atropine does not begin to dilate the pupil until the inflammation has first been in some degree subdued, or has subsided; and yet, in these very cases, its beneficial influence is, perhaps, even greater than in others. I should explain this influence in few words, by saying that, besides having some not very pronounced action as a sedative, and besides diminishing hyperæmia by producing some contraction of the blood-vessels, it secures rest to the parts within the eye. In treating the ophthalmiæ generally, we perhaps hardly reflect sufficiently upon the ceaseless movements of the structures with which we have to deal. The recent researches of Henson and Voelckers, besides those of other observers, have shown that the choroid, as a whole, is perceptibly shifted to and fro by the action of the muscle of accommodation; while the size of the pupil, and probably also, the amount of blood in the iris, vary not only with every adjustment of the eye for distance, but with every slight variation in the amount of incident light. These changes, moreover, take place simultaneously in both eyes, under the influence of impressions acting upon a single one only; and hence, in monocular iritis, every visual sensation experienced by the sound eye, and every variation in the amount of light received by it, even such as are dependent on the momentary withdrawal and replacement of a shading hand, or upon the momentary direction of the face towards a more or less lighted portion of the room, are attended by dragging and movement of the parts that are inflamed. Although inflammation may, and often does, affect the iris alone, yet there are many instances in which it spreads from this to other structures, and produces most disastrous effects. The importance of absolute rest in preventing such extensions, and the liability of ceaseless movement to favour it, are both so obvious, that it is needless further to dwell upon them, and (since atropine produces temporary paralysis of all the parts concerned in these movements) they furnish, to my perception, at once the most rational explanation of its value and the most cogent reasons for its sedulous employment.

[There are, however, certain impediments to the use of atropine, the most serious of which is when the atropine acts as a local irritant. This often arises from the solution used losing its neutrality. Practically, however, this difficulty has little bearing upon iritis, in which the prolonged use of the drug is not often needed.]

When all hitherto described has been carried out, there will still remain cases in which, notwithstanding the use of atropine, the relief of congestion, and the subjugation of pain, the pupil does not dilate, and vision either deteriorates or at least does not improve. In these cases it is found, as a mere matter of fact, that mercury, given rapidly, but discreetly, until the gums show some slight sign of its constitutional effect, will immediately break the chain of morbid action. From the very day on which the mercurial line becomes apparent the sensations of the patient are relieved, and the symptoms of inflammation decline. I am not prepared to discuss, at least in the space accorded to me here, the mode of action of mercury in iritis; but I may say that I think its effect is quite as declared in the traumatic or in the rheumatic forms as in the syphilitic, and that the indication for its use is to be sought entirely in the severity or obstinacy of the attack, and not at all in the cause by which it was excited. —*Practitioner, July* 1869, *p.* 21.

74.—ON AN IMPORTANT NEW APPLICATION OF CALABAR BEAN.

By T. Wharton Jones, Esq., F.R.S.

[The following case introduces to our notice a new resource in the treatment of paralysis of the third nerve, and suggests interesting considerations as to the true physiological action of the bean.]

Mrs. E. W., a widow, aged 41, was admitted into University College Hospital under Mr. Wharton Jones, first as an out-patient, and shortly afterwards, May 31, 1869, as an in-patient. She laboured under complete paralysis of the third nerve on the left side, of a rheumatic character.

Had rheumatic fever two years before and was laid up therewith for three or four months. About the middle of April of the present year she was exposed to a draught of air, and almost immediately after noticed that there was something the matter with the left eye, as she could not raise the upper eyelid.

On examination of the affected eye at her admission, it was found that the patient could not raise the upper lid, nor turn the eyeball towards the nose, nor move it upwards or downwards. Besides this, the pupil was in the middle state of dilatation, and incapable of contracting under the stimulus of light.

The patient complained of pain over the eyebrow, in the temple, and in the side of the head.

When I first saw the case, I dropped a solution of atropia into the left eye for the purpose of testing the action of this agent on the dilator pupillæ. The ensuing dilatation had passed off, and the pupil had regained its previous middle state before the patient presented herself again. She was now taken into the Hospital and put on good diet, as it appeared that she had been living very poorly of late. At the same time she was ordered a pill containing 1 grain of calomel, ½ grain of extract of colchicum, and 2½ grains of Dover's powder night and morning.

I now for the first time dropped a solution of the extract of Calabar bean into the affected (left) eye for the purpose of testing the action of that agent on the paralysed sphincter pupillæ. In doing so, the idea glimmered through my mind that the Calabar bean might possibly exert a beneficial action on the paralysed levator palpebræ, and on the similarly affected recti muscles.

The effect of the application of the Calabar bean, made on the 31st of May, was to contract the pupil to the size of a pin's head in the usual time.

On the 2nd of June, the action of the Calabar bean on the pupil had passed off, but it was found that the patient had acquired some slight power over the upper eyelid, so as to raise it a little by a strong effort. Seeing this, I repeated the application of the Calabar bean, as above mentioned, and discontinued the other treatment.

The quantity of Calabar bean used at a time was about a $\frac{1}{4}$ grain of the extract (an extract for which I am indebted to Dr. Fraser, of Edinburgh) reduced to the state of an emulsion by the addition of a few drops of water. This was freely poured into the eye.

On the 4th of June the patient could raise the upper eyelid a little more. The Calabar bean drops were accordingly repeated and continued thereafter three times a week. Under this treatment, I found at every visit I made to the hospital that the power over the levator palpebræ had increased.

On the 14th of June, the report states that the patient could raise the upper eyelid sufficiently for the purpose of vision, and that she could move the eyeball both inwards and upwards, but only a little downwards. There was still double vision.

By the 21st of June, the patient had acquired nearly complete command over all the muscles of the eyeball, except the inferior rectus, and could raise the upper eyelid as well as that of the right side, and there was but slight diplopia.

On Monday, June 28, it is reported that Mrs. W. could raise the left upper eyelid well, could turn the eyeball towards the nose and upwards well, but could not quite fully turn the eyeball downwards. On looking downwards, therefore, she saw double.

Wednesday, June 30. All the movements of the eye perfect, and no double vision, except in a slight degree on looking downwards. In regard to the pupil, it is to be remarked that it became contracted to the size of a pin's head at the usual interval after each application of the Calabar bean, but again returned to the previous middle state when the influence of that agent had as usual passed off.

The sphincter pupillæ has not, like the levator palpebræ and muscles of the eyeball supplied by the third nerve, as yet regained its power permanently, so as to contract under the influence of the action of the light on the retina. It is to be noted that the pupil of the right eye is in a nearly similar state, being but little movable under the stimulus of light. The adjusting power for the vision of near objects is impaired in both eyes, so that the patient requires the help of convex glasses sixteen inches' focus to read with. The sight has otherwise remained good.

The history of the above case, taken together with some further observations and experiments which I have made, throws light, not merely on the action of Calabar bean, but on the nature of the very interesting antagonism which exists between the effects of the latter and those of atropia. In the first place, I shall relate, as a clinical supplement to this example of the action of Calabar bean, an interesting experiment with atropine in a case of paralysis of the external rectus, depending, probably, on some intra-cranial affection. I was led to try this remedy by the consideration that the sixth nerve, which supplies the external rectus, is very closely connected with the sympathetic, and that the action of atropia is probably upon the latter. The patient had been some time under treatment, and under the use of iron and nux vomica his general health and strength had greatly improved, and the paralysis of the external rectus had considerably diminished. This case, being of probably intra-cranial origin, was likely to be less amenable to *local* treatment than the other. As soon, however, as I began to drop atropia (gr. iv—℥j) into the eye, the progress of the external rectus towards recovery was strikingly hastened, and all other treatment was discontinued, as unnecessary. This observation, together with the case first related, seems to point clearly to an antagonism between the two drugs, as regards effects upon the eye; atropine stimulating the sympathetic, Calabar bean the third nerve. This is not the whole of the antagonism, however, between the two agents. I have made a series of observations upon the circulation of the frog's web and of the rabbit's ear, as affected by the local application of Calabar bean and atropine respectively, from which the important circumstance appears clearly made out, that *while atropine contracts the arteries, Calabar bean contracts the veins.* In the frog's web only the atropine effect can be clearly demonstrated, for the *veins* of the web are hardly at all muscular; but in the rabbit's ear the effect of Calabar bean upon the veins can be well seen, the latter being well furnished with muscular fibres. The hair should be shaved off, and a vein of fair size being selected, the epidermis over it is rubbed thin with a piece of fine sandpaper, great care being taken not to carry this process too far. It is necessary then to wait a little time in order that the slight irritation thus produced may subside. The solution of extract of Calabar bean is then applied over the vein, and contraction follows speedily and in a marked degree. The effect of this agent in causing contraction of veins can also be exhibited to a limited extent, but still distinctly, in the human subject. Under the application of the solution of the extract to a slightly congested conjunctiva, if we closely watch the superficial veins of medium size and running a straight course towards the cornea, we shall convince ourselves that they diminish in calibre *pari passu* with the contraction of the pupil. Very large and tortuous rectal veins are not amenable to this influence.—*Practitioner, Sept.* 1869, *p.* 160.

DISEASES OF THE SKIN.

75.—ON EKZEMA.

By Erasmus Wilson, Esq., F.R.S.

There are few things in philosophy more remarkable than the change which has taken place in the medical mind, within the last few years, as to the signification of the word *disease*. At one time it was believed that disease was something foreign to the organisation; at the present time it is recognised that disease is nothing more than discordant and untimely action; it is the jarring string of the musical instrument; it is, to travesty a popular phrase for which we are indebted to Layard, the right thing in the wrong place. Very generally, perhaps always, for we do not at this moment remember an instance to the contrary, it is a reparative process, but, alas! too frequently the reparation is a *darn* by which the whole fabric is ultimely ruined. And we cannot place before you a more dire picture of impending destruction than that of the substitution of one tissue for another; let us say, nerve substance for muscle; vascular tissue for bone; bone for vascular structure; fat for heart-substance; connective tissue, or any member of the cell family, for more highly organised structures; or one or more of these tissues for skin. Herein lies, in many instances, a terrible realisation of the nature of disease.

Such conditions as those now referred to bring under our consideration the ruling and co-ordinating and maintaining power of that sublime essence, LIFE. We may not be scientific enough to put life into a bottle and weigh it or measure it, for such, we are told, are the aims of science; but it demands of us little philosophy to recognise its existence, and to note and to observe its laws. Of life in excess we can form no conception; but life, in its multiple degrees of declension, from health downwards to disease and dissolution, is the daily object of our observation and study. We have said that disease is "discordant and ultimely action"; that it is the "right thing in the wrong place"; we may take a step further, and say that the regulator of discord, of ultimely action, of misplaced action, is *life*. Our business, then, as medical men, is with life, is to sustain life; and to this one end to direct all our inquiry and all our energies. If we were asked:—What is disease of the skin? we should answer—it is a lowered vitality of the tissue of the skin, manifesting itself by abnormal action. If upon these premises, we further inquire, What is the cause of disease of the skin; and *a fortiori* of ekzema? The answer would be—debility, constitutional and local; debility of the system, and debility of the skin.

Having now entered upon the question of the etiology, or the cause, of ekzema, we may repeat that the skin falls into a condition of disease because it is weak; and that the *cause* of skin disease, or, if you will, the *cause of ekzema, is debility*. And, as the consideration of "cause" involves a series of consequences, we may further state, that the skin is weak either from *hereditary* quality or from *accidental* circumstance; the accidental causes being *constitutional*, or such as create debility of the skin through the agency of the system; and *local*, or such as produce debility by direct operation on the part. Let us look at these causes when displayed in a tabular form; we then have:—

Skin debility { Hereditary
Accidental { Constitutional
Local.

Hereditary ekzema is by no means a rare manifestation of the disease. We meet with it in infants, one or other of whose parents is ekzematous; we meet with it under similar circumstances in the adult; or it comes before us a sequela in the form of xeroderma, or ichthyosis. And we may be permitted to inquire:—What it is that is conveyed by hereditary transmission from the parent to the offspring? To this question the simplest of all answers is evidently the most correct, namely, *tissue resemblance*. Just as the features of the child have their type in the parent, so also have its tissues; a type which is constituted, not of figure alone, but also of function. We have just travestied the language of a distinguished politician, and we venture now to travesty, but with a deeper veneration, a holier writing:—"And the *morbid conditions* of the parent shall be visited on the children"; for this law is indeed as true in its bearing upon physical conformation as it is in reference to the moral attributes of the individual.

But what shall we say to a doctrine that would convey, as an answer to our question, the idea of the transmission of a virus? Why, simply that it has no foundation, is false and obsolete, and only fitting to be trodden under foot. And yet this idea has prevailed aforetime, but is now, as we believe and sincerely trust, utterly extinct.

[After considering the causes, constitutional and local, Mr. Wilson observes:]

There is a group of remote predisposing causes, to which we have given the name of NEUROTIC. They are not diathetic, neither are they dependent upon the mere absence of nutrition; nor can the digestive and assimilative functions be especially blamed; but their essence is irritability; irritability taking its origin in nervous debility; and on that account we call them nervous or neurotic. For the subjects of nutritive causes we should look to infants, to children, to the growing age of youth, and to the parturient period; for the subjects of assimilative causes, we seek in the mid-period of life, when the material of nutrition is useless otherwise than as a stimulant; when, in consequence, it is present in excess; and when, as a further consequence, it undergoes chemical transformations that become excitants of disease. While, the neurotic group is supplied by those who have passed the meridian, in whom waste has taken the place of appropriation; or those, at earlier periods of life, in whom the nervous system has acquired an ascendency over the organism and tends to waste its kingdom by excessive, by ill-regulated, and by morbid activity.

The exciting causes of ekzema belong chiefly to the class of local irritants, and are especially concerned in the production of the local forms of the disease, and the remarks which we have made heretofore on the relative character of causes are particularly applicable to the present group. For example, cold and heat and moisture are frequent predisposing causes, and they are also, under other circumstances, common exciting causes. Need we remind you of the chapped wrists and hands of cold weather, ekzema erythematosum et fissum; of ekzematous eruption engendered by the direct agency of heat, as in ekzema solare; or of that very common cause of ekzema resulting from the combined influence of heat and moisture, as in the case of ekzema axillare and ekzema perinei. Then we have ekzema resulting from clothing and bedding of too heating a quality, and especially when heat and perspiration are united; ekzema from the flow of the tears, of saliva, of discharges upon the skin, and ekzema mamillarum. And then there is yet a more striking and homely example of the irritant consequences of combined moisture and heat in the instance of the common poultice; a large number of ekzematous legs owe their origin solely to the apparently harmless, but in reality dangerous, poultice.

Besides these we have an active exciting cause of ekzema in friction, and especially in that more severe form of friction to which itching incites, namely scratching. Hebra has the credit of making the remark that the eruption of scabies, which is an ekzema, is due, less to the direct irritation of the acarus than to the scratching to which its titillation necessarily leads. We need not accept this statement as a fact, but it is convenient as an illustration. Then follows the extensive family of the irritants—the mechanical irritants, such as sugar, flour, brick-dust, and lime, in the instance of the grocer's itch, the baker's itch, and the bricklayer's itch; and the chemical irritants, for example,—alkalies, acids, tincture of arnica, cantharides, and croton oil.

Varicose disease of the veins of the lower extremity is a common cause of local ekzema; distension of the minute venules of the skin occasions itching; the nails are brought into requisition to relieve the pruritus, papulæ result from the increase of irritation caused by the scratching, and a papular ekzema is forthwith established. It may be questioned, as in the case of scabies, whether the varicose veins, as well as the acarus, may not also be regarded as a predisposing cause, and the scratching the real exciting cause. Again, a scratch, an abrasion, or a leech-bite; the puncture of the ears for earrings, or the slight operation of vaccination, have also been known to be the starting-point of an ekzema, and in this sense a traumatic cause.

We opened our inquiry into the nature and qualities of ekzema by impressing upon you the necessity of a thorough knowledge of this one disease, not only on account of its own individual importance, but also because it must be regarded as the type of cutaneous disease in general, and the standard with which all other diseases of the skin are to be compared. We have, therefore, pursued the subject of its etiology at considerable length, more lengthily possibly than may have consorted with your patience; nevertheless, the subject is far from being exhausted, and will well repay personal examination for yourselves. For the present we deem it expedient to dismiss it, and conclude with a summary more easy of being borne in remembrance than our previous lengthened detail. The cause of ekzema is debility, sometimes inherent or diathetic, sometimes hereditary, and sometimes accidental or acquired. Every condition which tends to produce debility is therefore a cause of ekzema. It may be that the cause is a direct excitant; or it may be a predisponent requiring the ulterior stimulus of an excitant. So that, in ekzema, as in most other diseases, two factors are necessary to the production of the affection; first a condition of the body favourable to morbid action; and, secondly, an excitor capable of setting up morbid action. We will illustrate this point by one or two popular examples, in order to impress the matter more forcibly on your recollection. You know the encrusted ekzema of infants, termed *crusta lactea*, a state of disease which conveys in its name both its cause and the effect of that cause. Insufficient or bad milk is the occasion of debility; and, secondly, insufficient or bad milk deranges the stomach, and throws out an eruption on the skin. Again, we hear of ekzema from dentition, and of the very general impression amongst medical men that such an eruption is not to be treated; let us see how the case stands in this instance: painful dentition causes want of rest, disturbance of the digestive organs, debility; painful dentition is therefore a predisposing cause; then an exciting cause, such as cold or heat and moisture, steps in, and ekzema is established. Now, can you conceive any objection to removing, *if you can*, the predisposing cause, or the exciting cause, even if you dread to cure the proximate cause, that is, the disease? We think not; neither do we think that you would lose your *aplomb* of self-respect, if, in honestly allaying the causes, you inadvertently cured the disease. Or, let us take another case of still more importance as far as being thoroughly understood, namely, ekzema from vaccination. Vaccinia, as you well know, is a modified small-pox; the vaccine fever always occasions more or less of debility, consequently a state favourable to the invasion of ekzema; in other words, vaccination, with perfectly pure lymph, is a predisposing cause of ekzema; and another factor, namely, an exciting cause, completes the nosogenetic circle. Or the case may stand thus: the child is hereditarily ekzematous, and then the mere puncture of vaccination becomes in itself the exciting cause. We know the care which vaccinators usually evince in the selection of subjects for vaccination, and to this cause is to be attributed the extreme rarity of ekzema after vaccination; but with all the care they can adopt, an accident of this kind will sometimes happen. A lady brought to us, a short time back, an ekzematous child, in whom vaccination had brought out vaccinella; in other words, an eruption of umbilicated vesicles resembling those of small-pox; and we have recorded, in our writings, similar examples. But more frequently, the reverse of this occurrence is experienced, and the ekzematous diathesis generally refuses to respond to the vaccine impregnation.

And now we will leave the important question of cause, and pass on to that of *prognostics*. You will be consulted by mothers whose children are in a deplorable state from ekzema, and who may have been some time suffering before they came under your notice; and they will put to you two questions:—Is there danger to life? Is there danger of deformity? And to both of these questions you may answer in the negative. Ekzema is a disease of the "summa cutis" of the most superficial stratum of the derma, a disease in which the secreting faculty is in excess; a kind of catarrh of the external skin; a disease in which disruption and separation of the epidermis, with profusion, accumulation, and disiccation of secretions, together with a moderate amount of œdematous swelling, are the essential characters;

there is neither deep inflammation nor destruction of tissue, and therefore all these appearances clear away like an exuviated cuticle when a cure is effected, and leave no trace of their presence behind them. In one instance only, which lately fell under our notice, there was superficial sphacelus of the skin, with sloughing, extreme exhaustion, and a fatal termination of the case ; but these bad symptoms occurred only as the consequence of mismanagement. A second instance of death from ekzema in an infant is all that we can remember to have met with ; and there also mismanagement was the causa vera of the misfortune.

When it is remembered that not only the outer skin, but also the mucous membrane, is very commonly affected in ekzema, and especially the mucous membrane of the lungs, it is matter of surprise that a fatal termination of the disease is so very rare. We have seen this combination several times fatal in the adult, but in such cases bronchitis and pneumonia were the more frequent cause of death. But although we can speak hopefully of ekzema in regard to the ultimate result, there are several points in its history that mark it as an inveterate disease, and often a life-long torment. When it owes its existence to a diathesis, and is developed in infancy, it is wont to interfere very seriously with the nutritive functions of the skin. The skin is apt to become dry and hard and harsh, susceptible of irritation from trivial causes ; the normal secretions of the skin are more or less suspended or arrested ; the cuticle is unsound, and that state of the integument is engendered which we have termed xeroderma, a first stage of ichthyosis.

Like all diseases of the catarrhal class, ekzema is prone to be very chronic as to its duration ; it drags its weary length slowly along ; it is apt to become a habit ; and from the presence of itching as a leading symptom, two of the most active of the causes of the disease, namely, friction and scratching, are perpetually in operation in keeping up the disease. Another of the phenomena of ekzema, a tendency to recurrence, is also to be borne in mind in drawing our prognostic of its issue. Ekzema is apt to recur annually, for example, in the winter or the summer of the year ; sometimes twice in the year, as in the spring and at the fall ; and at other times at periods of several years. Again, its association with a mal-assimilative diathesis, such as gout or rheumatism, would very much influence our decision ; or its connection with some chronic and permanent disease of the local class, such as varicose veins. But possibly ekzema is, under no circumstances, more inveterate, next to its diathetic origin, than when it is associated with a weak and irritable nervous system—for example, in that group of the affection which we have distinguished as neurotic ekzemata.

In conclusion, looking to the many causes which contribute to render ekzema a more than usually chronic and inveterate affection; and, taking into consideration the circumstance that it is necessarily a disease of tardy movement towards cure, prone to repeated and vexatious exacerbations and relapse, we may venture to deliver the general verdict—that ekzema is not dangerous to life, that it is always susceptible of mitigation, and generally admits of permanent cure.

The LOCAL TREATMENT OF EKZEMA may be summed up in a few comprehensive words :—*allay irritation, and restore the weakened tissues to the normal standard of health.* The most complete mode of allaying irritation is to exclude the atmospherical air without interference with the transpiration of the skin. The method of restoration of the skin to its normal health, is by the judicious use of stimulant remedies. Stimulants, you will remember, when administered internally are termed tonics, so that the external treatment which we propose for the corroboration of the tissues of the skin, is eminently *tonic.*

Daniel Turner, the first of English dermopathologists, left behind him a reputation for his *unguentum de lapide calaminare,* the famous Turner's cereate; and we hope to be able to leave behind us an equal reputation for the benzoated ointment of oxide of zinc; at last, and apparently with some reluctance, provided with a place in the British Pharmacopœia, upon whose pages it sheds unwonted lustre. Now, the oxide of zinc ointment, properly benzoated, and made of pure materials, pure oxide of zinc and pure lard, is the most perfect local application for ekzema at present known; and, indeed, is so perfect, that we doubt the possibility of its ever being excelled. It is suitable for every form and every stage of the disease, but most of all for the dry forms; and it should be applied in a two-fold manner, namely, in substance with the point of the finger, or a thin spatula, or the hand, so as to distribute it uniformly over the diseased surface; and, spread on some soft material such as lint, cambric, or fine flannel. Employed in this way, the oxide of zinc ointment has all the advantages and most of the uses of the poultice, without the objectionable qualities of the latter, the dirt, the fermentation, the saturating moisture, and the decomposition. And it fulfils the purpose which it was sought to accomplish; it excludes the atmosphere without preventing transpiration; it keeps the surface upon which it is applied soft and flexible, and it gives nature time to effect the reparative processes needed by the skin Sometimes the dressing, if the diseased surface be of small extent, may be kept in its place by strips of adhesive plaster; sometimes, and when possible this is always desirable, it is maintained in its place by the moderate pressure of a bandage either of elastic cotton or of Domett's flannel. But there are situations in which a bandage could not conveniently be applied, such as the face and the general surface of the body; and others in which a dressing of any kind would be objectionable, as behind the ears, in the axillæ, and in the region of the pudendum; and in all these cases we must trust to the reapplication of the ointment as frequently as it may chance to be rubbed off.

It may be laid down as an axiom of cutaneous medicine, that ekzema, in its active stages, should never be washed; one of the first instructions which you give to the mother of an infant suffering under ekzema infantile is to avoid washing the eruption; discharges may be absorbed by a soft napkin, adjacent surfaces may be wiped with a similar material, dirty ointment or loosened crusts may be lightly brushed away; but for the nonce no water should be employed. Your aim should be to preserve the inflamed surface as tranquil as possible: to give Nature, of whom medicine is only the handmaiden—perhaps we may be permitted to say the maid-of-all-work, since it seems to be the fashion of the day to discountenance the special investigation of disease—to give Nature the opportunity of accomplishing her cure after her own fashion, and without unmannerly restraint. We have said that the office of the zinc ointment is to sheathe and protect the morbid surface; but it performs another and very important function, namely, that of creating an artificial layer, to take the place, for the time being, of the lost cuticle; and this concretion of the ointment should be studiously promoted by applying fresh and fresh ointment as often as that previously applied has become dried up, or has been accidentally wiped away. A scab or thin crust—not such a crust as would detain secretions on the part, and be a source of offence—is Nature's "court-plaster," that we must learn in good time to respect. Officious Physic and meddlesome Surgery are two very mischievous and dangerous allies.

We say again and again, and then over again, that the local treatment of ekzema, in its more active and therefore most troublesome stages, requires no other remedy than the benzoated oxide of zinc ointment, and that by the use of the oxide of zinc ointment alone the first of the indications of treatment of ekzema will be accomplished, namely that of *allaying irritation*. But you *must* be provided with a good article, and you *must* learn to know its use. We will now pass on to another consideration, also of much importance. When your dressings are properly applied, and adjusted with nicety, they should remain undisturbed for as long a period as possible,—say for twenty-four hours, or even longer. But here you will find a difficulty in the management of infants; their habitual restlessness will disturb dressings, will rub off the ointment, and it will require patience to replace them ; but there is no alternative, the thing *must be done*, and you must bring all your inventive faculty to bear upon the problem. But we may mention in this place that there are two regions of the body where the oxide of zinc ointment is unsuitable, namely, on the eyelids ; for in that situation, getting upon the conjunctiva, it creates irritation and gives pain ; and on the scalp, where it would tend to mat the hair together, and prevent a necessary condition in the treatment of ekzema, namely, perfect cleanliness. In both these situations you should substitute the nitric oxide of mercury ointment for the zinc ointment, diluted in the proportion of one part to three of benzoated lard.

In the transitional and passive periods of ekzema, there is one symptom that is extremly troublesome, and that will demand all your ingenuity and care to mitigate, namely, pruritus ; and pruritus is associated with a greater or lesser degree of infiltration of the skin, that we must use our best exertions to disperse. In fact, the pruritus, in a majority of instances, is a consequence of the infiltration, and therefore a radical treatment points to the necessity of removing the objective, rather than the subjective, of the cause rather than the effect. When pruritus is a neurotic phenomenon, our best palliatives are, hydrocyanic acid and tar ; when it depends on dryness and desquamation, the benzoated oxide of zinc ointment or a borax lotion may suffice ; but for infiltration in various degrees, stimulant applications are necessary, ranging in strength from the mildest up to the strongest.

As an antipruritic, the lotion of emulsion of bitter almonds twenty or thirty kernels to six ounces of water ; dilute hydrocyanic acid, two drachms ; and spirit of wine, fourteen drachms, is an admirable one, cooling and soothing at the same time. Sometimes borax may be made to take the place of the hydrocyanic acid, and the spirit of wine omitted ; or the original lotion may be rendered stimulant by the addition of the perchloride of mercury, from one to two grains to the ounce. But this, *in limine*, with regard to the use of lotions ; however agreeable they may be for the moment, they are all, unless they contain oil or glycerine, apt to leave behind them a certain degree of dryness or perhaps add to the dryness they were intended to mitigate, for dryness of itself may be an incidental cause of pruritus. Hence, conjointly with the lotion, we recommend a smear of the oxide of zinc ointment or one of the milder stimulant ointments ; that is to say, that as soon as the lotion is dried, a smear with the ointment should follow.

Borax is an antipruritic when it is combined with oil or glycerine so as to form an emulsion ; thus, two drachms of borax, with six of benzoated oil or glycerine, and seven ounces of emulsion of bitter almonds, form an elegant and useful lotion; but glycerine is uncertain in its operation on the integument, and is sometimes, instead of being a sedative, an irritant to the skin. Our antipruritic resources are, as you will perceive, very imited; sometimes a solution of carbonate of soda, two drachms to the eight ounces; or of carbonate of ammonia of the same strength in camphor of julep, is very smoothing; or, tincture of opium with spirit of wine and camphor mixture; and sometimes we shall derive advantage from a lotion of sulphuret of potassium; or a diluted aconite liniment.

But a more potent antipruritic remedy, although at the same time stimulant, is to be met with in tar, with its dydrocarbon extracts, carbolic acid and creosote. And we have nothing more competent to quell a raging pruritus than Hebra's famous lotion, composed of oleum picis juniperi, sapo mollis, and alcohol, of each an ounce, diluted more or less considerably with water, a pint or even half-pint. Carbolic acid and creosote may be combined with distilled vinegar or glycerine, and used in a diluted form, one or two drachms to the half-pint; or with oil in various degrees of concentration.

We have shown you how you should deal with the inflammatory or active stage of ekzema; how you should meet the requirements of pruritus proceeding from nerve-irritation and dryness; there are two other morbid conditions which we have now to mention,—namely, infiltration giving rise to condensation and thickening, and nervous irritability. In moderate states of infiltration, the milder forms of stimulant remedies will be found sufficient; such as the nitric oxide of mercury ointment, diluted or pure; the citrine ointment. diluted or pure: or the ointments of tar and creosote. These remedies should either be well rubbed into the affected skin morning or night; or, the latter should first of all be well washed with the juniper tar soap, and then the ointments should be used.

The natural history of ekzema teaches us that severe pruritus generally precedes the excretion of a copious exudation from the skin, and that the exudation at once relieves the itching; this principle has been taken advantage of by Hebra, for the purpose of furnishing an additional remedy and an additional means of treatment; in a word, a remedy, which by application to the thickened and condensed skin, shall cause the infiltrated fluids to be poured out upon the surface in the same way that nature performs the act in the ekzema ichorosum. The remedy which Hebra recommends is the potassa fusa variously diluted, according to the effect that is intended to be produced. Very commonly he uses a solution of equal quantities of caustic potash and water, and we have pursued the same practice with infinite advantage; in fact it may be truly said that some of the more condensed and hardened forms of ekzema will yield to no other means. The solution is painted on the surface by means of a sponge brush; the viscous ichor is seen to ooze forth from the thickened skin even in a few seconds; the bloated tissue cells are made to disgorge their excessive contents; and in a few minutes one of the most passive and inveterate forms of the affection is transformed into an active stage, and becomes amenable to the milder principle of treatment applicable to the inflammatory condition of the disease.

If there be one thing that distinguishes ekzema more than another, it is nervous irritability—a condition easily understood when we remember that ekzema is an inflammation of a part of the body abounding in nerves, and that the papillary stratum of the derma is a stroma composed almost entirely of a capillary rete and nerve plexuses. To this special organisation are to be referred the teasing and violent pruritus that accompanies this affection; its sympathies with states of the economy; its exacerbations; its sometimes frenzied torments; and its not unfrequent intolerance of every remedy that may be proposed for its relief. We have evidence that such is the case by the comfort which is often given by an application which a few days before drove the patient distracted, and by the pain and distress frequently caused by the most soothing remedies, and, first among these, by the oxide of zinc ointment. When this state of nrrvous irritability prevails (and it may be present in various degrees from the slightest up to the most confirmed)—when every known application creates pain or awakens dread and alarm—our only resource, but a most valuable one, is nitrate of silver, in solution, of various strength, from two grains to the ounce up to a drachm, and dissolved, as the case may be, in distilled water or in nitric æther. Such a solution painted over an inflamed and irritable surface, acts like a charm; from bearing nothing the ekzema will bear everything; and a dressing with the zinc ointment becomes its greatest solace.

There are few medicines of a tonic character that come to our aid in the treatment of infants and children suffering under ekzema, beyond cod-liver oil, wine of iron, phosphate of iron, and arsenic. As age advances into youth we have the further help of vegetable bitters, of the mineral acids, and quinine; and in adult life the field of tonics expands somewhat more: there are the citrate of iron and quinine, strychnine, and phosphoric acid; and at the head of all *facile princeps* stands arsenic, of which the British Pharmacopœia affords a copious variety of forms- arsenic with potash, arsenic with soda, and arsenic with hydrochloric acid. There is one preparation of arsenic that you will never want in the treatment of ekzema, and we caution you to avoid it, namely, the triple solution of Donovan, the liquor hydriodatis, hydrargyri, et arsenici.

The form of arsenic to be selected in your treatment is of very secondary importance; you may take the potash solution of Fowler, the soda solution of Pearson, or the acid solution of de Valangin. Now that the British Pharmacopœia has equalised the strength of liquor arsenicalis and of the acid solution, the dose of these two preparations will be the same; the liquor sodæ arseniatis of Pearson being somewhat weaker. You will, however, find an advantage in departing from the formula of the British Pharmacopœia by omitting the tincture of lavender, the flavour of which is generally disagreeable to the patient, and the more so, as he is ordered to take the medicine with his meals. We have always advocated small doses of arsenic, and in a long practice we have seen no reason to depart from that principle; but we have no hesitation in prescribing it for infants of a few weeks old. It is a medicine which seems almost expressly made for them, it answers so well; and in a short time after taking it, the improvement in their condition and nutritive power is often very remarkable.

The dose of the arsenical solution for the infant is one or two minims three times a day; and for the adult, three or four minims. We make a distinction between a tonic dose of arsenic, which we believe should be as small as is here directed, and an alterative dose as required for lepra, which may mount up to five or six minims. But we have a good deal to learn yet with regard to the therapeutical properties of arsenic.—*Journal of Cutaneous Medicine, July and Oct.* 1869, *pp.* 105, 217.

76.—ON THE NATURE AND CLASSIFICATION OF EKZEMA.

By J. L. Milton, Esq., Surgeon to St. John's Hospital for Diseases of the Skin.

[In the majority of cases at any rate ekzema is not a vesicular disease at all. The elementary lesion may be an erythema, a vesicle, a papule, or a pustule.]

It simply requires that surgeons should judge for themselves in order to be convinced that true ekzema is not vesicular at any period of its course. It was not without considerable diffidence that I first hazarded this statement, standing, as I then thought I stood, quite alone in this view. Having, however, suffered from this complaint, I had on numerous occasions watched the development of the morbid process hour by hour from the very beginning, and had long ago satisfied myself that there was no real foundation for the opinion so very generally entertained. Being, unwilling, however to rely exclusively upon my own case, I examined a great many patients of all ages with a good lens, and wrote down the observations as they were made, but I looked in vain for the vesicle of ekzema. I found, it is true, vesicles enough, *but none which passed into an ekzematous surface.* Again, on reading a paper in the Medico-Chirurgical Review in which ekzema was mentioned, I repeated these observations with all the care I could, but with the same results. Some circumstances were, however, noticed which probably contribute to support the view so generally taught.

1. The first is, that when the discharge comes from a part furnished with hair, as the leg for instance, minute accumulations of fluid form at the junction of the hair with the skin. These are possibly considered as vesicles—M. Devergie, for instance, seems to take this view;—but on more close scrutiny it will be found that *neither their course, situation, nor form corresponded* with those of a true vesicle, and on touching one of them *gently* with a blunt-pointed glass rod, a minute drop of serum will be found adhering to it. I have always failed to detect the slightest trace of cuticle on these little drops of fluid; certainly, if there were any, the pressure was much too slight to break it, whereas we know that the covering of vesicles will resist some force. When M. Devergie speaks of the fleeting nature of the vesicles of ekzema, he overlooks the fact that genuine vesicles are not very fleeting even in such transient disorders as miliaria, and that those of herpes, with which he classes ekzema, not only bear such distension as to become globular without bursting, but endure the friction of the clothes for days without rupture. Again, herpes may reappear for a long series of years without a single patch becoming ekzematous; ekzema, so far as I have been able to observe, never becomes herpetic, nor have I ever seen an outbreak of vesicles on a patch of ekzema. At times large patches of skin become covered with ill-developed vesicles, looking as if they would become ekzematous. I have never seen them do so, but I do not impugn the accuracy of those who say they have; they sometimes complicate or accompany genuine ekzema, but if the latter complaint continue ever so long, or reappear ever so often, they do not make their appearance again. And these facts are, I submit strong grounds for believing *that there is a radical and unalterable difference between ekzema and herpes, the papule and vesicle.*

2. The second circumstance is, that in the vicinity of ekzematous patches, vesicles and even bullæ are occasionally found; the former not unfrequently appear about the knuckles or back of the hand. These vesicles, however, last but a very short time, and in most of the cases I have seen they did not return after being once removed; in a few instances they did. No connection seemed to exist between the number of attacks of

this kind of complication and of the outbreaks of ekzema. One patient, who had had ekzema continually breaking out for years, had never suffered from vesicles; another, under the same circumstances, had had five or six attacks; in another case I was informed that each eruption of ekzema had appeared in this way. So far, however, as my own observation goes, I never saw it more than twice in the same patient. This eruption seems to be in no way dependent on the state of the ekzema; it will disappear when the latter complaint is stationary or getting worse. In all the cases I ever saw, the vesicles were rare in proportion to the numbers and extent of the ekzematous patches; a patient might have thirty or forty of these, and yet only one near which there were vesicles. These vesicles always healed quickly and did not become ekzematous, and the disease in their immediate neighbourhood remained uninfluenced both by their outbreak and their departure; sometimes appearing afterwards in its usual form on the very spot where vesicular eruption had been,—a still stronger proof, it seems to me, than any of the foregoing, that there is a radical, unalterable difference between the vesicular and ekzematous inflammations.

3. The third reason is that a disorder which seems to me to be a form of herpes has been confounded with acute ekzema. It begins with heat, severe itching, and pungent, stinging pains. Vivid red patches form and serum is effused under the cuticle, which is raised up in firm irregular vesicles; then the serum becomes of a whitish hue and grows turbid; the vesicles break, the fluid oozes out, the cuticle is next thrown off, leaving the skin red and tender, and the disease passes away, mostly, I believe, to return no more. In still more severe cases numbers of little pustules form round about them, constituting really an impetiginous herpes. Now this complaint, seen when the cuticle has just given way and when the serum is pouring out freely, might be taken for ekzema. But except that the vesicles run into a mass instead of remaining separate, I see nothing that distinguishes this complaint from herpes zoster; it never tends to take on the one essential character of ekzema, that of discharging serum for an indefinite period of time; it disappears almost, if not quite, as fast when nothing is done as when it is actively treated; the vesicles are firm, and only break when the fluid has become turbid and flaky. At the end of two months' duration of the disease in a chronic form I have seen some of them still full of fluid; how long they had lasted it was of course impossible to say, as the accounts given by patients or their friends of any particular vesicle, to which very probably their attention has never been previously directed, were not likely to be very connected or reliable. But the very fact of their continuing to exist under any circumstances proves that

the tendency to form vesicles continues in these cases, *and this we certainly do not find in ekzema.*

On every ground of analogy as to anatomical and pathological features, course, and cause, ekzema solare, ekzema mercuriale, vesicular eruptions of the hands in bakers, confectioners, &c., and vesicular scabies ought, I think, to be referred to this variety, and the whole subdivision classified with herpes, of which they are only forms. They are simply instances of blistering induced by heat or some other irritant, and no more ekzema than blistering with cantharides or boiling water would be. There is, however, one form of solar ekzema which might be mistaken for genuine ekzema. It is that affection in which a large portion of skin in an exposed part, as the back of the neck, is steadily invaded by a crop of vesicles which gradually turn flaky and yellow. It is very slow and will last a long time. I have seen cases in which it had not altered materially during two months. It is not always due to extreme heat. In children, during cold, dry east winds in spring, the vicinity of patches of dry ekzema will sometimes be invaded by vesicles in considerable numbers. For the most part these may be referred to the same variety. Ekzema mercuriale I have never seen in the vesicular stage, but I think, from the descriptions given, that it clearly belongs to this group, and that it is manifestly herpetic. The very course which it runs proves it to be different from pure ekzema. It generally yields promptly if merely let alone or under any simple treatment, and shows no tendency to come back again and again, which cannot be said of ekzema. It is true this arrangement is quite antagonistic to all established views, and clashes with the pathology of Plumbe and Willan; but the fact is that the ekzema of Plumbe simply embraces the ekzema solare and mercuriale; *he never alludes to the severe affection nowadays called ekzema as being a form of that complaint.* Any confusion, therefore, likely to ensue from the change I have proposed is due, not to any desire of introducing novelty on my part, but to the fact *that what we recognize as ekzema was certainly not recognized as such by Plumbe.*

The chronic form of ekzema, in the vast majority of cases, begins as an eruption of papules; in rarer instances, as an erythema or pityriasis. These may therefore, for the present, be laid aside, in order to examine acute ekzema which we might expect to find more closely connected, if any form of ekzema can be connected, with vesicular disease; but the more narrowly we scrutinize it, the more certain does the conviction become that its course and symptoms ally it to an acute erythema or erysipelas, or that form of inflammation described by Wilson as scalded head. In this affection a large portion of skin, as the forehead for instance, becomes red, swelled, glazed, and stiff.

This is followed by disquamation of the cuticle and the formation of moist scales, or even crusts; or there may be a slight, though decided weeping, as is often the case when the complaint attacks the lower part of the leg. Now, an observer bent on finding out the truth, and not on merely supporting a theory, may see this over and over again in several persons, or several times in the same person, without ever finding a vesicle. I attended a gentleman for this complaint who was a good deal alarmed about it, as an intimate friend of his had been quite a martyr to ekzema; for eighteen months the patient seldom passed any great length of time without an outbreak on the face, yet on no occasion could either he or I detect a single vesicle.

Nature of Morbid Process in Ekzema.—The following appears to be the process which ensues in all cases of a truly ekzematous nature. A portion of skin becomes red, inflamed and uneasy, stiff and itching, but rarely swollen, except when the complaint attacks the ear. The cuticle rapidly dies, and is cast off or torn off by scratching. To this succeeds a discharge of serum, which seems to be poured out by the sudoriparous ducts. M. Rayer says "the follicles of the skin" are the parts essentially affected. Under this term he includes, I presume, the sebaceous ducts; but unless my observations have misled me, there is no proof that they are actively concerned in secreting the serum poured out in such cases, although it seems difficult to understand how they can escape being involved to a certain extent. When the process is slower, the falling off of the epidermis is succeeded by a cuticle thicker and coarser in its texture, and gradually assuming the look of a soft scale. For the most part the redness starts from several points, or papulæ, which are sometimes almost as pointed as those of leichen, sometimes not raised above the level of the skin. These may spread very slowly, or they may grow so rapidly as to coalesce within twelve hours. It often happens that a small spot will inflame, and, without becoming either a pustule or a vesicle, will desquamate and secrete a crust which looks very like impetigo; and if the patient be seen in this state it may be taken for such. But it is ekzema; and, though it may pass away and never be known as such, future observation will verify what I state. This variety, too, may be complicated by pustules, and the combination of these two perhaps most frequently constitutes the affection called impetiginoid ekzema, although the term really embraces every form of ekzema complicated by pustules, and they may attend any severe case of ekzema. Again, the serum, instead of being of its ordinary consistence, may be almost purulent in character. In some cases of old standing ekzema the eruption, even at a very early period, particularly when seated on the backs of the hands and wrists, presents the appearance of numerous minute, detached, low elevations of thickened red skin, partly denuded of all covering, and partly covered by discoloured but firmly attached cuticle, and sometimes indented so as to assume a cup-like form. Their appearance at this stage would scarcely show them to be ekzema, but when torn or rubbed, and often in a short time spontaneously, their character is established by a discharge of serum, though this is seldom abundant; indeed, I believe the appearances just spoken of indicate a declining state of the disease.

In some few inveterate cases I have seen this indented irregular state of the skin so strongly marked on the head and hands that I have been tempted to ask myself whether favus is not a localised form of this affection in a bad constitution, especially as it is possible, by keeping the crusts on a patch of ekzema moist a considerable time, to induce a smell very like that which distinguishes favus. I do not allude to that rare form of the disease which begins with an eruption of pustules, and which I have never seen, but to favus as ordinarily met with. In all the instances where I have been able to trace the progress of the diseased action, it was, though much slower, essentially the same as in ekzema; that is to say, it really consisted of inflammation and redness of the skin and death and removal of the cuticle, followed by the formation of crusts. The reader will say that the presence of the parasite constitutes a distinction so strong that there can only be analogy, there can be no community between the two, no passing of favus into ekzema. But it is admitted that without a peculiar fitness of the soil the parasite cannot flourish at all, and there *is* something peculiar in favus. It is not a mere result of want, darkness, scrofula, dirt, or contagion, even if the latter be a factor, and its value is very doubtful, or of any conjunction of these causes, otherwise it would be common instead of being extremely rare. Then there must be a variety of constitution—a variety which, peculiarly and alone, yields the proper soil for receiving and fertilizing the said parasite, *and this variety may modify an ekzema.*

Divisions of Ekzema.—The question as to what extent ekzema is to be divided and subdivided I leave to others. I should be inclined to admit no divisions except the simple and convenient one of acute and chronic, with the addition of perhaps, ekzema impetiginodes. Papular and red ekzema are simply different degrees of severity in the same affection; ekzema solare I would reject altogether, as I would any vesicular disease. I venture to suggest, too, that ekzema should be entirely removed from the vesiculæ, and either be made to form an order apart, or, for convenience-sake, be relegated to the order of papulæ. I say for convenience-sake, because it evidently does not always begin as a papule, the starting-point being a form of inflammation of the skin closely allied to impetigo in some cases, to erythema in others, and to pityriasis in a third set of cases. But I would extend it so as to let it embrace some disorders which are at present otherwise classified.

And first, for reasons now to be mentioned, I think we might include under the head of ekzema an exceedingly obstinate affection attacking the leg, and running into ulceration; a complaint generally seen in persons of middle age and advanced life. On as good grounds as have often been urged for giving a name, this variety might be called ulcerative ekzema, but as I have no wish to introduce any new terms, I shall confine myself to noticing it simply as a variety of ekzema, the variation being, I think, *due solely to its attacking a part peculiarly liable to ulcerate.*

It is attended by all the signs of an acute but local attack of ekzema, and perhaps in no part of the frame is this malady more distressing than when it fixes on the lower part of the leg; the pain, heat, and itching tormenting the patient almost incessantly, especially at night. In very severe cases one or more spots will rapidly pass into ulceration; indeed this seems the natural termination of the attack, and there is often some mitigation of the symptoms when it has ensued. This ulceration is very refractory, often requiring months to cure, even under the most careful treatment. It is peculiarly this stage which seems to stand so far apart from ekzema, owing to the fact that a large proportion of patients suffering under the complaint are never seen by the surgeon till it has reached this epoch. I have, however, repeatedly traced it from ekzema. In other cases the orifices of the sudoriparous and probably of the sebaceous ducts become so large that they can be easily seen.

It does not in any way follow from all this that ulceration of the leg or ankle is always due to ekzema; many ulcers are free from any complication of this kind, the skin around being never more than merely red and tender, while ekzema may run its course without being complicated by ulcer, but assuredly out of a given number of cases of ulcer complicated by ekzema, a certain proportion begin with the latter complaint; how many I am not prepared to say, but, judging from the entries in the case-book of St. John's, the numbers are pretty evenly balanced. Perhaps, as a rule, it will be found that when the ulcer is seated about either malleolus it is the first in order, and when higher up the leg, especially if it be superficial, that ekzema or erysipelas was the first to appear; but I do not bring this forward in any way as an established fact.

Occasionally a patch of old superficially ulcerated ekzema is seen on the ankle, covered with a crust almost like dried gruel in colour and appearance, or even like nail or horn. The crust is naturally quite insensible, and not always calculated to reveal the nature of the affection, but if it be removed by macerating it for some time in solution of carbonate of soda, and covering it with oiled silk, the skin beneath is found to be affected with the ulcerative form of ekzema just described, being red or purplish, painful, and superficially ulcerated. These patients are generally in an infirm state of health; most of those I had seen had suffered from bronchitis. The process here is very closely allied to the obstinate purplish discoloration of the lower part of the leg, caused in many cases by ekzema.

In the forty-sixth volume of the Transactions of the Medico-Chirurgical Society Dr. Ogle describes two cases of what is called spurious or sebaceous ichthyosis. The patients were two girls, sisters, and the symptoms consisted of a slow formation of hard crusts, much like what I have described, seated on the lower part of the leg and foot; when these were removed the skin beneath was found to be red, glazed, and disposed to crack. Under the microscope the scales seemed to consist of layers of epithelium, with some round and reddish-coloured solid-looking bodies, along with numbers of old and evidently worn-out epithelial cells. Now, I think, were this affection removed from ichthyosis and added to ekzema or favus, it would be a step in the right direction. It is not ichthyosis, and has nothing in common with it, while it has a very great deal in common with favus. The skin beneath the crusts is found in the same state as when those of old standing ekzema or favus are removed, and the crust seem to form in the same way; that is to say, a small patch of skin slowly inflames, the cuticle dies, and is thrown off, and a crust is slowly formed. In one case which I examined with great care this seemed to me clearly the process which took place. I have only seen one instance of it in 15,000 cases of cutaneous disease, and in that instance the crusts appeared to form in the way I speak of. The patient here also was a young girl, and the disease was seated on the legs, there being some scores of these spots on each limb, giving them a most singular appearance. It is true the secretion of ekzema, when microscopically examined, is different from what was seen in Dr. Ogle's cases, consisting generally, when hardened into crusts, of layers of albumen or lymph, mixed with a few blood-discs or globules; but this may have been due to the disease having penetrated more deeply into the ducts of the sebaceous glands than ekzema usually does.

In the paper spoken of above I stated my reasons for believing that both pityriasis and tinea circinata occasionally form starting-points of ekzema. Pityriasis rubra is indeed, so far as I have been able to observe, an undeveloped ekzema, and, along with that rare affection known as red general pityriasis, ought, I think, to be referred to ekzema altogether. But tinea circinata will certainly also pass into ekzema, though under what circumstances of health and constitution this transformation takes place I have been quite unable to determine. Sometimes it is seen in healthy children, or again the very reverse may be met with. In the first instance of this which I ever observed, three children of the same family were placed under my care for impetigo, principally affecting the scalp. The eldest of these children, a boy, and the youngest, a girl, suffered only slightly; the second, a boy, had it in a very severe form. A considerable time afterwards two children came to stay with this family for some little while. They were both suffering from tinea circinata. Whether as a coincidence or a result I know not, but the fact is certain that the other three children were very shortly also affected with ringworm. The younger boy, who had suffered so severely from impetigo, displayed here a similar peculiarity, for one large patch became strictly ekzematous, discharging serum very freely, while no symptom of the kind was seen in either of the others. Yet this boy was far the healthiest and strongest of the three. In another case, in which six young ladies, sisters, were affected with tinea, several of the patches in two of the patients turned to obstinate ekzema; yet there was no perceptible difference of constitution among these girls, nor have subsequent observations thrown any more light upon this point.—*Journal of Cutaneous Medicine, July*, 1869, *p*. 140.

77.—FLEXIBLE COLLODION AS AN APPLICATION IN HERPES ZOSTER.

By the Editor of the Dublin Quarterly Journal.

[In a review of a recent work on diseases of the skin the Editor of the Dublin Quarterly Journal remarks :]

We are surprised to find that the author makes no allusion to the value of flexible collodion as a protecting agent in herpes zoster. In the numerous cases which occurred last summer and autumn, we found the greatest advantage to result from the immediate painting the vesicated patches with the collodion, and repeating the same as often as required. It is the cleanest and most effectual means of preventing the rupture of the vesicles, and we can warmly recommend it even in cases where superficial ulceration has taken place.—*Dublin Quarterly Journal*, 1869, *p*. 396.

78.—THE TREATMENT OF IN-GROWING TOE-NAIL.

This painful affection is often a source of great worry to the medical attendant, as it is always a misery to the unfortunate patient. Our readers will be glad to know what kind of treatment is found best in the large experience of the metropolitan hospitals. We are pleased, therefore, to have the opportunity of laying before them notes upon the subject from five well-known hospital surgeons, whose opinions will be read with interest and instruction.

King's College Hospital.—In slight cases of in-growing toe-nail, an affection which in the great majority of instances has its seat in the great toe only, and is caused by the lateral compression of the toe by the boot, Mr. Wood scrapes down the nail on the affected side until it is thin and yielding, like paper. The thickened skin overlapping the nail is then pared off with a sharp thin-bladed knife until it is close down to the raw, but not so far as to draw blood. A pointed stick of the nitrate of silver is then applied lightly to the painful ulcerated chink, and a small piece of lint, rolled up so as to fit into the groove of the nail, is dipped in glycerine and applied by means of a thin strip of adhesive plaster or small india-rubber band.

In cases where the mischief is the result of hypertrophy of the thick skin forming the lateral margin of the groove, and without any deformity in the shape or thickness of the nail itself, Mr. Wood pares off skin, under ether spray, to a level with the nail, and then applies the pressure as before by means of a small roll of lint. If the toe-nail itself be broad, distorted, irregular, and bent laterally by the pressure, the best plan is to remove a triangular portion of the nail itself in the middle line, the angle reaching down to the centre of the nail. This allows the nail to fold up and accommodate itself to the limited space without digging in at the edges.

But if there be much ulceration, irritation, and distorted growth at the matrix of the nail itself—which in long-continued cases, and in scrofulous or syphilitic conditions of the system, is sure, sooner or later, to ensue,—the only plan from which effective relief can be obtained is by the time-honoured but excruciating process of division into the quick, down the nail itself at the inner third, and evulsion of the affected part of the lunula from the matrix. In doing so, it is important to get all that part of the root away entire, as a small portion growing up with irregular angle will cause a speedy return of the disease. In all cases it is important also to regulate and ease the boot, during the renovation of the nail, that the skin should not again overlap and be forced down upon the edge, which always induces a return of the disease.

St. Mary's Hospital.—Mr. Norton never performs any operation in the treatment of in-growing nails. He applies, in the following manner, a solution of liquor potassæ (two drachms to one ounce). A piece of cotton wool is saturated with the solution, and pressed gently down between the upper surface of the nail and the soft tissues, which latter are usually in the form of a fungous mass of granulations. The solution permeates the substance of the nail, and softens and pulpifies the superficial cells. The wool is kept continually moist with the lotion, and the softened nail-tissue is wiped away each morning. The nail in a few days becomes thin and flexible, and if desired, can be pared away without pain, or it may be allowed to remain for a few days longer, when it becomes entirely removed by the solution. Mr. Norton considers it most essential in the treatment that the lotion be continued until all ulceration has disappeared, otherwise the too early hardening of the ephithelium becomes again a source of irritation, and promotes a return of the disease, or rather prevents a cure from being effected.

Of the several cases treated by this method during the past two years, one of whom suffered from in-growing nails on both great and both second toes, not one patient has returned to the hospital, and, therefore, Mr. Norton believes that in no case has there been a recurrence of the affection.

St. Thomas's Hospital.—Mr. Croft finds that, commonly, patients suffering from this disease do not come under his notice until the affection has been some time in progress. In such cases it is his practice to adopt the radical cure advocated by Dupuytren, which is to divide the nail lengthways, and turn out the in-growing half of the nail. In all but the hardiest patients he employs the ether spray to benumb the toe. He prefers to cut down the centre of the nail with a strong short scalpel, and then to raise the half-nail to be removed, by forceps (using the latter as a wedge), before plucking it from the matrix. In other cases he slits up the nail with scissors. He prefers this radical plan of treatment in advanced cases, because it saves the time of both the patient and surgeon, and because other plans include, besides time, frequent skilled dressings, of which poor people are rarely capable. In an early stage, Mr. Croft cuts out the in-growing corner of the nail, cauterises the granulations deeply with nitrate of silver, places a small pad of lint on the cauterised spot, and then, by means of a long narrow strip of plaster winding round the toe from the unaffected side, fixes the pad firmly in its place, at the same time directing its pressure *from* the nail. Under this treatment, well carried out, he finds cicatrisation soon takes place. Absolute rest is enjoined. The nail requires to be kept carefully trimmed.

Mr. Croft has just cured, by the radical plan, the brother of a girl who had suffered from in-growing nail in both great toes. The second toe became affected some months after the first had been cured.

University College Hospital.—Mr. Christopher Heath has never seen any good result from paring the centre of the nail, or applying caustic to the exuberant granulations overlying its margins. He has always found the simplest and most satisfactory method of treatment to be, to take a narrow slip of the nail away with the scissors and forceps, taking care to extract the whole depth of the nail, which is not always easy owing to the sodden condition in which the tissue has been kept for a length of time, by which it is rendered very friable. When the edge of nail thus extracted is examined, it almost always presents a rough serrated margin, and it is this which causes the irritation. After the removal of the source of irritation the use of careful dressing, with lint gently pressed down by the side of the nail, is necessary to repress the granulations, the use of a lotion of the nitrate of silver or sulphate of copper (two grains to the ounce) has been found very advantageous. Mr. Heath finds it necessary to warn patients who have suffered from in-growing nails to wear wide-toed boots, and to keep the sulcus between the nail and the flesh clear of epithelium. They should be careful also to apply for relief the moment they feel uneasiness from the nail, when a perfectly painless removal of a small portion of the nail prevents further mischief.

In inveterate cases, where the nail and toe are deformed, the former being very much in-curved, Mr. Heath recommends the removal of a slip of nail on each side, and the destruction of the corresponding portions of matrix, under chloroform, either by removal with the scalpel, or the application of the actual cautery. This lays the patient up for a few days, but effects a permanent cure. Mr. Heath believes that it is never necessary to remove the entire nail, by splitting and avulsion, as is often recommended.

Westminster Hospital.—Mr. Francis Mason has had under his observation at this hospital during the last few months an unusually large number of cases of in-growing toe-nail. Mr. Mason believes that the plan ordinarily recommended of cutting the toe-nails as we do the finger-nails—that is, of rounding their corners—often induces the condition it is intended to obviate. He has generally found that the so-called in-growing toe-nail has been primarily caused by injury in trimming the nail. Too much of the corners is removed, and a sensitive and occasionally bleeding surface is left. The patient will soon after perhaps wear a tight boot, or possibly may take a long walk. In the act of walking, the tender surface is pressed up against the slowly growing nail, causing increased irritation, and giving rise to those painful granulations invariably seen in different degrees, in such cases. Mr. Mason therefore advises that the free edge of the toe-nail should be cut square. Respecting the treatment of ingrowing toe-nail, the plan which Mr. Mason has most confidence in is this: A sharp-pointed stick of solid nitrate of silver is applied with some vigour to the base or under surface of the painful granulations, a small piece of dry lint, or lint dipped in black mercury lotion, is then carefully inserted, and the whole toe surrounded with water dressing. An astringent, or other lotion, according to circumstances, may be subsequently employed. The highly sensitive surface is thus destroyed, and the patient is enabled to attend to his business in comparative comfort. Such a plan of treatment has been found uniformly successful in Mr. Mason's hands, and he believes that occasional apparent failures are due to the method not being thoroughly carried out. It should be remembered that it is useless merely to touch the surface of the granulations with the caustic; the base is the part to be attacked. If the operation be efficiently performed, it is doubtless attended with considerable pain for the moment; but the pain is reduced to a minimum by the use of the ether spray, and especially if the caustic be well pointed, instead of being as so often happens, broad or angular at the extremity. Evulsion of the nail is seldom required for this condition, being more suitable—indeed necessary, combined sometimes with the free application of the strong nitric acid—in cases of disease of the matrix, questionably entitled "onychia maligna," which is not unfrequently met with on the fingers of unhealthy and ill-fed children.—*Lancet, May* 29, 1869, *p.* 747.

79.—NITRATE OF LEAD IN ONYCHIA.

Dr. de Moerloose speaks most favourably of the good effects of applying powdered nitrate of lead to the sanious fungous ulcers resulting from onychia. A single application of this salt every twenty-four hours is sufficient, a light bandage being put on over the diseased surface, and it is stated that after the first dressing the pain ceases, the swelling decreases, suppuration is lessened, and the fetid odour is destroyed. Of course, if any irregular horny fragments are seen at the bottom of the ulcer, it will be necessary first to excise them. The most rebellious cases are cured often in eight or ten days, at the most in three or four weeks. An extension of its use might be made to certain obstinate scrofulous and unhealthy ulcers. (*Rev. de Thér. Med.* October, 1868.) Dr. J. G. Wilson is convinced that the local application of nitrate of lead is superior to any other agent in the treatment of excoriated or fissured nipples. The formula he generally employs is 10 gr. of nitrate of lead in ℥i of glycerine applied freely to the affected nipple.—*Glasg. Med. Jour., May,* 1869.—*Dublin Quarterly Journal, August* 1869, *p.* 204.

80.—ON THE MEDICINAL TREATMENT OF ULCER OF THE LEGS.

By Christopher Heath, Esq., Assistant-Surgeon to University College Hospital, and Teacher of Operative Surgery in University College, London.

[Great stress is laid by authorities on this subject, where local applications, bandages, &c., are employed; but that prominence is not given to internal remedies which a considerable experience in this class of disorders leads Mr. Heath to claim for them.]

The three drugs which I constantly employ as adjuvants to the local treatment of ulcers of the leg are opium, iodide of potassium, and arsenic; and each has its appropriate class of cases. Mr. Skey has on more than one occasion directed the attention of the profession to the advantage of employing the first of these—opium—in the treatment of ulcers, and lays special stress upon the value of the drug in cases of chronic callous ulcer. I find opium of the greatest service, however, in the small irritable ulcer often found in combination with varicose veins, and also especially in any form of ulcer in which a sloughing action has supervened. I have had recently a case of tertiary ulcer in the leg making satisfactory progress, when it was suddenly attacked with violent sloughing action. This rapidly yielded, however, to the free administration of opium, combined with local poulticing.

In iodide of potassium we have, I believe, a remedy most potent—I might almost say infallible—in all cases of ulcer dependent upon syphilitic taint, if given in appropriate doses. The tertiary syphilitic ulcer is in my experience a very common one, and may be recognised by the peculiar "cachectic" appearance of the sore, the worm-eaten margins, the thin, profuse discharge, and the want of all healthy granulation at the base of the ulcer. These ulcers affect especially the upper part of the leg, are not usually combined with varicose veins, occur in comparatively young subjects, and frequently recur again and again, as is shown by the thin cicatrices seen in their neighbourhood. The majority of these ulcers occur in women, and are traceable in most cases to infection from the husband, either directly or, more often, indirectly through the *fœtus in utero.* In these cases there has often been no genital ulceration, no coppery eruption on the skin; but the patient gets out of health, has ulcers on the extremities, and very generally aborts if she becomes pregnant. A very small dose of the syphilitic poison is sufficient to produce these ulcers, and I believe, though the point is one difficult to be sure about, that congenital syphilis may show itself in this way in comparatively early life, *i.e.* between puberty and twenty. At least I have had more than one patient under my care with ulcers of the leg which rapidly healed under anti-syphilitic treatment, who strongly denied any personal infection.

In order to derive marked and immediate benefit from the iodide of potassium in these cases, the ordinary 3 and 5-grain doses are useless, and it is essential to begin with 10-grain doses thrice daily in combination with an alkali, and to push it if necessary to 15, 20, or even 30-grain doses, though these latter are seldom necessary. Local mercurial treatment, in the form of yellow or black wash, or the white precipitate ointment, appears to hasten the healing of these ulcers; and their recurrence is, I have no doubt, due to non-persistence in the internal treatment until the patient's health is thoroughly restored.

Arsenic is an invaluable remedy in those common cases in which chronic ekzema is a concomitant, if not the antecedent, of the ulcer of the leg. In those cases where the skin is irritable and inflamed, and the epidermis dry and scaly, local treatment may be varied without end and a cure will not be produced; whereas, if arsenic be given internally, the leg will rapidly improve and the ulcer heal under any simple stimulant. My experience does not corroborate the rule laid down by Mr. Hunt, of limiting the dose of the liquor arsenicalis to five minims thrice daily. After a careful and extended trial of the medicine administered in this way, I have come to the conclusion that in many cases to produce a cure it is necessary to increase the dose to ten or fifteen minims, and to maintain this high rate until the constitutional symptoms of the drug are produced. The same rule holds in the treatment of ulcers, lupoid or otherwise, on other parts of the body, but I will confine my remarks at present to ulcers of the lower extremity. I am careful always to administer arsenic upon a full stomach, and I find a remarkable tonic effect produced by its exhibition.

I have before me the notes of the case of a woman, aged 56, who came to me in March 1868, with chronic ekzema of the leg, and with an ulcer, the edges of which were so hard, that I almost doubted whether there was not some scirrhous infiltration. In April she began taking liq. arsenicalis in five-minim doses thrice daily. This was increased at the end of a month to eight-minim doses, and the leg began to improve rapidly. On June 3rd, the dose was increased to ten minims thrice daily, and she took this dose steadily for eight months, the leg getting smooth and healthy, and the ulcer slowly healing. In January 1869, the constitutional effects of arsenic began for the first time to show themselves, and the dose was immediately reduced to five minims, and this she is now taking, the leg being well, and the ulcer at the end of a year being nearly healed and quite soft at the edges.

Another patient, a broken-down woman, aged 60, with bad ekzema of the leg and ulcers above the inner ankle, began taking liq. arsencalis in five-minim doses thrice daily, on January 10th of this year. The dose was increased to eight minims on February 20th, and the skin around the ulcer being healthy, and the ulcer healing, quinine was substituted on May 1st. On July 3rd, however, it was manifest that the ulcer was not making progress, and that the skin was becoming scaly and red, and she therefore resumed the arsenic.

I have quoted these cases principally to show that feeble and elderly patients bear and do well under considerable doses of arsenic. I am convinced that the fear of producing toxic effects deters many practitioners from pushing this drug sufficiently far to produce the desired result. I have seen several instances of ulceration in various parts of the body where arsenic has been administered for a length of time without inducing healing, but in which a rapid cure resulted from pushing the dose as above recommended.—*Practitioner*, *Aug.* 1869, *p.* 103.

SYPHILITIC AFFECTIONS.

81.—THE TREATMENT OF SYPHILIS BY THE HYPODERMIC INJECTION OF THE SALTS OF MERCURY.

By Dr. Thomas James Walker, Surgeon to the Peterborough Infirmary.

[The plan of administering bichloride of mercury by subcutaneous injection in cases of syphilis, was originated by Dr. Lewin, of Berlin. It has been employed by several of our continental brethren.]

Notwithstanding the opinion so strongly expressed by many eminent men against the use of mercury in syphilis, we find this remedy steadily holding its ground; and it is still regarded, not only by the vast majority of the medical profession, but also by the most experienced and most scientific of the specialists in this branch of medical science, as by far the most valuable remedy which we possess to combat the malady; and this fact is the more striking, since all admit the bad results which follow the abuse of the drug, and since, moreover, its administration is, as I believe, conducted by most practitioners on an entirely erroneous principle—that, I mean, which is inferred in the rule usually laid down that mercury, when administered for the cure of syphilis, should be given *until the gums are touched.*

The impression that the beneficial effect of mercury is not obtained until this so-called physiological effect is observed, and that, when this is observed, the full benefit of the drug has been derived, prevails, I believe, almost universally through the profession, and detracts most powerfully from the remedial value of the drug. The occurrence of salivation, or even tenderness of the gums, must be regarded as an accidental complication of the use of mercury, which is of importance only as being a thing to be avoided if possible, since the injury to health caused by salivation—that is, by the stomatitis &c., produced by the use of mercury—is so great, that the disuse of the drug is indicated on the first indication of this complication. In administering mercury for the cure of syphilis, the object always should be to avert any affection of the mouth, or any other physiological action of the drug, the occurrence of which will necessitate our discontinuing the remedy before it has exerted its curative influence on the disease. The occurrence of tenderness of the gums and salivation is no criterion of the amount of mercury absorbed into the system, or of the remedial power of the drug; and it would be desirable generally, in cases where no precaution to prevent salivation is taken, to continue the use of mercury far longer than the occurrence of this complication admits of. It is a mere fortuitous circumstance, depending in a great measure on the state of the patient's mouth and gums, and upon other circumstances unconnected with the drug. The mercurial treatment should be continued until it has done its work with the disease: and the occurrence of any accident which necessitates its cessation, before this end is attained, should be avoided if possible. It was from Professor Sigmund, while following his *clinique* in Vienna, that I learnt how completely the occurrence of salivation might be avoided by diligent attendance to the cleanliness of the mouth, and by the constant use of alum. I usually direct my patients to carry a little piece in their pockets, and to suck it every hour or two for two or three minutes at a time. If patients pay strict attention to these directions, the occurrence of either tenderness of the gums or salivation is an exception to the general rule; and I have frequently, in obstinate cases of syphilis, been able to continue the rubbing in of mercurial ointment daily for months, and until every symptom has disappeared, without the occurrence of salivation, or even of tenderness of the gums.

I do not desire to enter here, however, into the question of the propriety of the mercurial treatment of syphilis: I assume that mercury is a proper remedy to use for the cure of syphilis.

But I take the opportunity of pointing out what I consider the erroneous principle by which the administration of the drug is usually regulated, and at the same time to indicate what I consider the correct principle; viz., to administer the drug until the disease for which it is given is cured, and to avoid every complication which may necessitate the discontinuance of the remedy before this object is attained.

The method of administering mercury which enables us to cure the disease with the smallest quantity of the drug, and which at the same time is freest from the risk of the complications to be avoided, is the best. Hitherto, I have always been in the habit of using the mercurial inunction, guarded by the use of alum, as mentioned before. Doubtless, when the method is once brought before the notice of our associates, the plan will be subjected to more extensive experiment, furnishing more decided results. The preparation which I have used in the following cases is a solution of 5 grains of the bichloride in 250 minims of water, with 250 minims of glycerine. This mixture is of such a strength that 100 minims contain 1 grain of the bichloride; and of this I inject 10 minims, or one-tenth of a grain of the salt, and upwards. The injection almost always causes more or less pain, and usually, though not invariably, is followed by slight inflammation and exudation at the seat of puncture. In one case, this was sufficient to cause slight ulceration of the skin—a result which I attribute, however, in part to the fact that the injection was performed by an assistant, who states that, having had but little experience in the matter, and fearing to pass his needle too deep into the cellular tissue, he believes that he forced the injection actually into the tissues of the skin. The infiltration usually disappears in from three to six days. The dose has been repeated every second or third day in most cases; and the situations in which I have made the injection have been various, most frequently over the abdomen, occasionally in the cellular tissue of the arms or thigh. I have usually injected alternately on opposite sides; and I have certainly observed that the various forms of skin-affection, &c., disappear more rapidly in the immediate neighbourhood of the seat of puncture.

Dr. Zuelzer of Berlin has recently sent me a small pamphlet, forming the inaugural thesis of Dr. Adolf Gelber, in which the use of the kinate of mercury *(Chininsaure Quecksilberoxydul)* is recommended as the best salt of mercury to use for injection. It is readily soluble in water, and is, according to this author, less liable to give rise to pain, inflammation, or any other untoward complication, than any other preparation of mercury. The dose which he recommends is one-sixth of a grain.—*British Medical Journal, July* 10, 1869, *p.* 30.

82.—ON THE TREATMENT OF SYPHILIS.

By Dr. John Kent Spender, Surgeon to the Mineral Water Hospital, and to the Eastern Dispensary, Bath.

[At the conclusion of a paper on this subject, Dr. Spender recapitulates the therapeutic propositions advanced by him.]

1st. For the secondary forms of syphilis give, in the most eligible form, iodide of potassium in moderate doses, with blue pill or some analogous preparation.

2nd. The double compound of iodide of potassium and bichloride of mercury may be necessary for treating syphilitic inflammation of deeper tissues.

3rd. The bichloride of mercury is valuable for removing the intermediary squamous syphilides. The green iodide of mercury is recommended by Mr. Squire. In doubtful cases, bichloride of mercury may be added to arsenic.

4th. The earlier tertiary phenomena of syphilis are relieved by the double compound of iodine and mercury just named; the later ones by large doses of iodide of potassium. Sometimes even cures may be effected. Tonics are generally useful subordinate agents.

5th. Infantile syphilis always requires mercury.

And I may add that in otherwise intractable cases, the mercurial bath and the hypodermic method of introducing mercury into the system should be rendered available.—*Lancet, June* 26, 1869, *p.* 878.

83.—THE TREATMENT OF GONORRHEA BY AN IMPROVED CONTINUOUS INJECTOR.

By —— Morgan, Esq., Surgeon to the Westmoreland Lock Hospital; Professor of Surgical and Descriptive Anatomy R.C.S.I.

[The necessity of *deep* urethral injections is apparent when we know the pathology of gonorrhœa. In this disease the inflammation is not confined to the terminal portion of the urethra, but extending along the whole course of the canal up to the prostate. The fossa navicularis and the vicinity of the bulb are very liable to become diseased.]

I believe that the failure and uncertainty of most injections arises not so much from their composition as from their insufficient application and non-diffusion over the surface; and also that the frequent and large use of a diluted and weak injection is better than the more limited application of a stronger one. To carry out the latter object I have put together an arrangement for applying a diluted application to the deeper parts of the urethra, using the principle of the chemical "wash bottle" as the injecting force.

The injection-point is made rather abruptly tapered so as to plug the orifice with tolerable ease. The patient's hands are both left free, the one to hold up and support the penis. the other to introduce and keep steady the injection-point. The mouth-piece leading to the bottle is to be held between the teeth, and by blowing more or less energetically, a continuous injection can be attained. The more fully the injection-point is introduced, so as to fill the orifice, the more deeply will the application penetrate by the filling of the urethra. The bottle holds abouts two ounces, which I find the most convenient and useful quantity for use. In the acuter stages, great relief can be given by the use of this application in introducing sedative solutions, such as ʒss. vel. ʒi. tinct. opii ad. ℥i. aquæ, or the ext. opii aquosi, gr. i. ad ℥i. aquæ, which answers even better ; the solution should be previously warmed by letting the bottle stand in hot water, and this may be used three or four times a day.

After the first few days I have found the bisulphite of lime solution (prepared by Medlock and Bailey) as the most useful medicament, added, according to the sensations of the patient ʒi. vel. ʒii. ad ℥i. aquæ ; it seems to influence specially the virulence and quantity of the discharge.

If any of the ordinary ingredients in use be preferred, such as sulphate of zinc, tannin, &c., they should be applied in very dilute form, chiefly to be regulated by the sensibility of the urethra and the feelings of the patient, as a large surface is brought under the influence of the application by the full and gentle distension of the urethra by this means.

In spermatorrhœa, also, I have found the application of a sedative solution of tinct. opii. ʒss. ad. ℥i. aquæ, used night and morning as most efficacious in allaying hypersensibility, unless in such rare and severe cases as require the application of strong local applications by the porte caustique, or sponge.—*Dublin Quarterly Journal, May* 1869, *p.* 358.

84.—ON THE TREATMENT OF BUBOES AND THEIR SINUSES BY MEANS OF CARBOLIC ACID AND SMALL VERTICAL INCISIONS.

By Dr. J. Lamprey, Surgeon to the 67th Regt., Portsmouth.

[It appears from the report of the committee appointed to inquire into the pathology and treatment of venereal diseases in the army, in 1867, that there were 2011 cases of bubo admitted to hospital. The average duration of treatment was thirty-six days.]

The importance of a method which would expedite the cure of this disease, and at the same time save the patient the suffering from extensive incisions, cannot be over-estimated ; and, however much beneath our notice such cases may appear to be at first sight, none reward the care and attention bestowed on their treatment with better results. A bubo which, under the old method of treatment, might take months to heal, may be cured in a few days by a more judicious mode. The importance of making the first incisions in a particular direction, always taking care that the bubo has well suppurated beforehand, is much greater than what it would appear to be. If it is made in a line parallel with Poupart's ligament every movement of the thigh will keep the edges of the wound in a constant state of motion ; whereas if it is in a vertical direction the motion of the thigh will disturb the coaptation of the sides of the wound much less. This does not appear to be sufficiently dwelt upon in works on surgery, on the contrary, the recommendation of one of the ablest surgeons, in a work just published, is that the bubo should be laid open by a free incision throughout its longest diameter, either horizontal or vertical to Poupart's ligament. (*See* "Erichsen's Surgery.") Bumstead, in his work on syphilis, states that Langston Parkes, an American Surgeon, treats buboes by opening them in several points and injecting sulphate of zinc, and using a compress ; in every case he succeeds in making a cure in a few days. He punctures the bubo with a grooved needle, and takes care that the walls of the abscess are not too thin. From my own experience I prefer, for the reasons stated, a vertical incision in the centre of the suppurated gland, just sufficiently large to allow the free escape of the collected pus ; and from the experience of repeated trials, I find that by injecting a solution of carbolic acid, diluted to one in ten, into the bubo, it has the effect of preventing the formation of pus in the bubo sac, and causes the secretion of what would otherwise be pus, to become a clear and serous looking fluid. The injection is done by a common glass urethra syringe, the nozzle being inserted into the opening into the bubo. This causes some amount of pain at first, but it soon passes off. Care must be taken, however, that none of the solution gets on to the scrotum or on the skin of the thigh or nates, as it acts as a powerful escharotic on some individuals. This injection should be squeezed out of the sac by moderate pressure, and it need not remain in it longer than a few seconds. I prefer injecting on the day following the incision, as this allows the pus to be freely discharged and the bubo sac to contract somewhat. I repeat the injection after an interval of three days, applying in the meantime over the bubo a piece of lint wet with carbolic acid, diluted to 1·40, and covered with gutta percha tissue. The interval of rest is of importance, inasmuch as it allows the reparative process of nature to be developed, as, after all, it is this that heals and not the applications.

Should another bubo form in the vicinity, and a communicating sinus establish itself between them, or should the extremity of the sac of a bubo be found to extend into the the inguino-scrotal angle or in an opposite direction, none of which are of uncommon occurrence, instead of introducing the director, and slitting up the sinus or bubo to its full extent, I find a better plan is to introduce a probe to the furthest limit of the sinus or bubo sac, and make a small opening in the integuments so as to allow the extremity of the probe to pass through; by doing this a course is made for a free current of the carbolic acid injection to pass through, and in a few days the healing process is more satisfactorily established then if the sinus was laid open throughout its whole extent. Why this should follow it is difficult to explain, but one sinus treated in this way will be sufficient to show that it has this effect.—*Medical Press and Circular, July* 28, 1869, *p.* 71.

MIDWIFERY,

AND THE DISEASES OF WOMEN AND CHILDREN.

85.—CONCERNING THE ACTION OF OPIUM UPON THE UTERUS; AND PARTICULARLY AS A PARTURIENT AGENT.

By Dr. P. C. Barker, Morristown, New Jersey, U. S.

[Dr. Barker has found opium of use in those cases of labour where contractions of the circular fibres of the os prevent its physiological dilatation proving the source of great distress to the patient and annoyance to the attendant. A few cases are given illustrative of this.]

Case 1.—Mrs. H., about twenty-five, a strong and healthy woman, primipara, was taken in labour two p.m., July 15, 1862. Saw her soon after. Pains frequent, and of moderate severity; os dilated sufficiently to admit the point of the index-finger. Head presenting in first position. Left her for half an hour, and upon returning found her condition unchanged. Visited her at intervals until late in the evening, when, no progress having been made, ordered antimon. et potass.-tart., gr. $\frac{1}{8}$, every half hour. Went home, leaving directions that I should be sent for if any change occurred. Messenger came for me about two a.m., 16th. No further dilatation. She complained very much of the severity of the pains. Tartar emetic, gr. $\frac{1}{4}$, every half hour. No improvement resulting, and nausea being constant, it was discontinued in the morning, and a stream of warm water was thrown upon the os, by means of a Davidson's syringe, for half an hour. This was repeated three times during the morning.

Two p.m. Still no dilatation. Patient a little feverish, and complaining of being very tired and sleepy. Ordered morph.-sulph., $\frac{1}{4}$th, and left her to get a little sleep, while I went to attend to other engagements. Returning about an hour after, I found mother and child comfortably asleep side by side. About half an hour after taking the morphine she had a hard expulsive pain, and before any one could leave the house the child was born. The pains had not changed in character until just before the termination of the labour, nor had she been asleep.

Case 2.—Mrs. O., 35, multipara. Previous confinements easy. Taken in labour with her fourth child, November, 1863. Pains of same character as in case 1, for sixteen hours, producing little dilatation. At one a.m. gave morph. sulph., gr. $\frac{1}{3}$, hoping to quiet the pains. Left for home, a short distance away, and retired at once. Just as I was getting asleep, a messenger came for me in hot haste, stating that the child was born. Hastily dressing, I returned in time to remove the placenta. Less than three-fourths of an hour had elapsed since I quitted the house. She had but one pain, of different character from those which had tormented her so long unavailingly, previous to taking the morphine.

Case 3—Mrs. W., about 24, primipara, sent for me early in the evening. Being absent from home, my former partner, Dr. F. D. Leute, of Cold Spring, N. Y., answered the summons. Upon my return, I went to relieve the doctor. There was no dilatation, although the pains had been recurring for some time. We gave her morph. sulph., gr. $\frac{1}{4}$, and went home, giving directions to send for me should any change occur.

On the following day, I learned that about half an hour after departure she was seized with severe expulsive pains, which terminated the labour before a messenger could be dispatched after me.

It is obvious that morphine was given in these cases, as it is usually given by the profession, if at all, with the intention of obtaining a respite from the pains, in the hope that when they returned they would be more efficient. I was surprised in each case at the result, although in the first I attributed it to the repeated use of the warm douche, from its recognised power in certain cases of this character. In the succeeding cases I was obliged to look for a different explanation, and at length concluded that the morphine increased the expulsive power of the body of the uterus to a degree sufficient to overcome the circular fibres and connecting tissue of the os uteri. Further light was thrown upon the subject by the following case:

Case 4.—Mrs. G., 28, multipara. In labour a number of hours. Os uteri remaining about half dilated, and rigid. Gave morph. sulph., $\frac{1}{4}$ gr. About half an hour after, while making an examination during a pain, my first and second fingers being applied to opposite sides of the os, in order that I might observe the effect of the pain upon its hitherto unyielding tissues, I was surprised to feel it easily dilating.

In this case I suspected that while opium stimulated the fibres of the body of the uterus (longitudinal and oblique), it also relaxed the circular fibres of the os. Further observation, in a large number of cases of varied character, has convinced me that opium, instead of having a general anodyne effect upon the uterus, possesses this special power as a parturient agent. I say general anodyne effect, for while it sometimes quiets uterine contractions (witness its universal use for this purpose), yet it is in those cases in which the circular fibres are called into action alone, or where the longitudinal and oblique fibres contract irregularly—in short, in *false pains.* I am fully persuaded that *opium never did or can arrest a physiological labour.*

I have many times been called to cases in which the pains have returned regularly and with increasing intensity for a number of hours without producing dilatation to any extent, and after giving a full opiate have had the satisfaction of finding a marked improvement after a sufficient time had elapsed for its absorption, the patient having even harder contractions with less distress than before, and the os uteri being speedily dilated.

During the first stage of a physiological labour, I believe that the circular fibres of the os are passively relaxed ; and that the active, usually gentle, contraction of the fibres of the body of the uterus serves to overcome the resistance which the tissues of the cervix and os present to dilatation.

Now if the circular fibres of the os retain their tonicity, or if they contract with those of the body during a pain (and I have felt them contracting in a number of cases), no dilatation can be effected ; or, at any rate, it will be with great difficulty, and the resulting distress will be greater than when they offer only the minimum amount of resistance.

The cases above narrated and referred to have taught me that opium possesses the power of ralaxing the circular fibres, at least of the os, and of stimulating the longitudinal and oblique fibres into active contraction. It is upon these principles that opium is exhibited in dysmenorrhœa, when it is dependent upon spasmodic contractions of the circular fibres ; or where it is owing to the presence of "menstrual decidua," clots, &c.

In abortions it an invaluable remedy, facilitating dilatation, diminishing hemorrhage, promoting the expulsion of the placenta, and lessening suffering.

Ergot, on the other hand, by causing contraction of the circular fibres, retains the placenta, and therefore should rarely be given (in abortion) until after the fœtus and secundines have been expelled.

Placenta prævia.—I have used opium in three cases of placenta prævia, one at the sixth month and two at the term, saving the mother in each instance. In another case I attempted to turn, but, having made an erroneous diagnosis as to position, the placenta being planted directly over the os uteri, I introduced the wrong hand, and, failing to get hold of the feet properly so as to bring them down, I detached the (entire) placenta rather than lose time by changing hands. I mistook a R. Occip. Post. for a L. O. Anter. position. The hemorrhage ceased at once, and the mother subsequently did well.

I think that opium meets two important indications in *placenta prævia:* 1. It facilitates dilatation, thus shortening the period of greatest danger. 2. It promotes the expulsive power of the uterus. It also serves to lessen hemorrhage by a special hæmostatic action.

It is an interesting fact that, in one of these cases, when the respiration was reduced to four in the minute by cumulative action of the opium, which had been too frequently repeated by mistake, the uterus expelled the child with one pain, thus illustrating my statement that opium does not possess the power of arresting normal uterine contractions.

Hour-glass Contractions, &c.—While hour-glass, cylindrical, or other irregular tonic contractions of the uterus (particularly those which occur after the expulsion of the fœtus) may be (and doubtless are sometimes) spontaneous, still in my experience they have always seemed to be due to ergot. Since I have learnt the special power of opium, as set forth in this paper, I have used it in these cases with invariable success, although some of the most approved obstetric authorities say such use "is objectionable."

I will give the following cases in point:

Case 5.—December, 1864. Mrs. McD., aged about thirty-eight. Primipara. Labour progressed steadily until the head had fully distended the perineum. Retrocession followed every pain, and, as they were neither strong nor long, no progress was made. The vulva too was well dilated, and I gave f ℥ iss. Squibb's fl. ext. ergot to complete the delivery. Fifteen minutes afterwards the peculiar contractions produced by ergot commenced, and the child was soon born. Placing my hand upon the fundus of the uterus (it having been pressed upon by the hand of an assistant while the child was being delivered and the funis tied and severed), I discovered it to be much elongated, reaching above the umbilicus; and, making a vaginal examination, found the placenta to be beyond the reach of my fingers, and, introducing the hand, discovered it so tightly grasped by an hour-glass contraction that I could not remove it. Gave morph.-sulph. gr. ⅓, noting the time. A little less than half an hour afterwards I was awaked (having fallen asleep from great fatigue) by a contraction of the uterus under my hand. The placenta was expelled with considerable impulse, and the uterus contracted down almost entirely below the os pubis (which by the-way, judging by my experience, it seldom does, teachers and text-books to the contrary notwithstanding.)

Case 6.—Mrs. S., multipara. A delayed labour dependent upon inefficient pains. Gave f ʒiss. ergot. The child being born, I delivered the placenta at once (as I now invariably do after giving ergot). A cylindrical contraction immediately followed, the fundus rising considerably above the umbilicus, in fact almost as high as the ensiform cartilage. The cylinder was about three inches in diameter, firmly and uniformly contracted. An opiate was given, and in due time a permanent globular contraction followed.

Dr. J. D. Trask, in his essay upon "Rupture of the Uterus," published in the *American Journal of Medical Sciences*, January and April, 1848, gives four cases of rupture of the uterus due to ergot. Malgaigne and others have reported similar cases. The following case is given to show how this accident *might* be produced in a diseased or even very powerful uterus, as well as to illustrate the apparently antagonistic effects of ergot and opium upon the gravid uterus.

Case 7.—Mrs. M., multipara, about thirty-five. Previous confinements easy. Present labour not worthy of note until the os was nearly obliterated, a ring only being left, when dilatation was for some unknown reason arrested, and no progress made for an hour. The uterine contractions then becoming inefficient, gave ʒiss. ergot. As soon as the pains peculiar to ergot began, I made an examination, and found the os less dilated than before, and its fibres contracting with those of the body. Gave gr. $\frac{1}{3}$ morph.-sulph. Within half an hour the pains had become more like those of a "physiological labour," the os uteri relaxed and became dilated, and the expulsion of the child speedily followed.

I gave opium in this case, with the expectation that it would produce a relaxation of the circular fibres of the os. It seems to have exerted this power in opposition to ergot as effectually as in the "hour-glass" and other irregular contractions above mentioned.

It may readily be seen that the simultaneous action of the ergot upon the os and body *might* have caused a rupture of the uterus. The contractions produced by ergot are continuous. I have often observed, however, that they have not been general, but have occurred in different sets of fibres successively. Herein lies one great danger of its use. In these, as well as all other irregular contractions of the uterus, I find opium a *prompt and reliable remedy.* In fact, I now use it in those cases of delayed labour dependent on inefficient uterine contractions, instead of ergot.

This property being established, the administration of opium admits of wide application in uterine therapeutics. In dysmenorrhœa, abortion, irregular contractions of the uterus of all kinds, previous, during, and subsequent to labour, and in placenta prævia as an adjuvant to Barnes's dilator, it will be found to be a valuable remedy; more certain in desired action (when given under proper indications) than any other remedy in our profession. Such at least it has been in my hands in quite an extensive obstetric experience.—*New York Medical Journal, June* 1869, *p.* 262.

86.—THE OXALATE OF CERIUM IN THE VOMITING OF PREGNANCY.

By Dr. J. Waring Curran.

The object of the present paper is to bring more prominently forward the valuable therapeutic action of the oxalate of cerium (first recommended by Sir James Simpson) in controlling the distressing nausea of pregnancy. Most practitioners have at one time or another experienced the difficulty of finding a successful remedy for the alleviation of this most disagreeable concomitant of the parturient state when it arises, and a few perhaps at the cost of their professional reputation. Baffled as others have been in getting hold of a successful agent to counteract the vomiting of pregnancy, experimenting with every new remedy likely to prove efficacious, adopting the favourite formula of reputed obstetricians, and exhausting every available and plausible method of treatment without reliable success, I became induced to prescribe the oxalate of cerium, and I can assuredly testify with the best effects and the most satisfactory results. Doubtless there are many remedies which temporarily subdue the incessant nature of the vomiting by neutralising the acid generated in these cases; but none with the *permanent* and salutary advantages of the drug I advocate.

I administer it in the form of pills, as follows:—

℞. Cerii oxal.; ext. lupuli āā gr. 24; div. in pil. xij., cap. j. ter in die.

and at the same time exhibit bromide of potass in ten grain doses with the tincture of yellow cinchona bark and spirits of ammonia. The mixture and pills appear to constitute a most successful plan of treatment.—*Medical Press and Circular, July* 14, 1869, *p.* 29.

87.—ON THE INDUCTION OF PREMATURE LABOUR.

By Dr. Robert Barnes.

Having discussed the various methods of provoking labour which have been practised, we are now in a position to select the most safe, convenient, and efficient. It has been already said that no method is so much in harmony with the principle of acting *cito*, *tuto*, *et jucunde*, as the introduction of the elastic bougie into the uterus. The plan I have successfully practised for some years is the following:—First, overnight pass an elastic bougie six or seven inches into the uterus, coil up the remainder of the instrument in the vagina; this will keep it *in situ*. Next morning some uterine action will have set in. In the afternoon, at an appointed time, proceed to *accelerative* measures.

Before rupturing the membranes, adapt a binder to the abdomen, and let this be tightened, so as to keep the head in close apposition to the cervix. This will often prevent the cord from being washed down by the rush of liquor amnii. Dilate the cervix by the medium or large bag, until the cervix will admit three or four fingers. Then rupture the membranes, and, before all the liquor amnii has escaped, introduce the dilator again, and expand until the uterus is open for the passage of the child. If the presentation is natural, if there is room, and if there are pains, leave the rest to nature, watching the progress of the labour. If these conditions are not present, and one or other is very likely to be wanting, proceed with accelerative methods—that is to the forceps or turning, or, in cases where the passage of a live child is hopeless, to craniotomy. By pursuing this method we may predicate with great accuracy the term of the labour. Twenty-four hours in all—counting from the insertion of the bougie—should see the completion of the labour. The personal attendance of the physician during two hours is generally enough. The mode of proceeding must vary according to the conditions of the case.—*Medical Times and Gazette, March* 6, 1869, *p.* 241.

88.—ON TEDIOUS AND DIFFICULT LABOUR.

By George H. Kidd, Esq., Obstetric Surgeon to the Coombe Lying-in Hospital; Hon. Sec. Obstetrical Society of Ireland.

There is no problem in practical midwifery of more importance, or, perhaps, of such importance, as to know when to interfere and afford assistance in cases of tedious labour. The often-repeated maxim, that "meddlesome midwifery is bad," and that "the powers of nature should be trusted," have now happily lost their hold over practitioners, and it has become the rule to afford early assistance rather than encounter the dangers of delay. But while it is agreed than the onset of the dangerous symptoms described by authors under the terms "powerless labour," "exhaustion," "cessation of labour pains," &c., &c., should not be waited for, it is incumbent on us not to expose either mother or child to the risk of operative interference without necessity, and the problem to be solved in each case is, at what period does the necessity arise?

An observation of Dr. J. Braxton Hicks will afford great assistance in determining this problem. Dr. Hicks finds that in the course of a tedious labour the pains may cease under two conditions, which must be discriminated for the determination of the proper mode of treatment.

The first of these conditions is a state of quiescence, in which the uterus is simply resting quietly. During it the pulse is not raised, and there are no untoward symptoms beyond languor, and possibly faintness. After a time the labour pains return, and delivery may be accomplished naturally, and with safety to both mother and child.

The second condition is one of continuous action, and by whatever cause the labour be obstructed, whether by contractions, &c., of the softer, or of the bony parts, or by the irregular spasmodic action of the uterus itself, sooner or later the rhythmical pains merge into this continuous action till it alone remains. This condition Dr. Hicks believes to be the precursor to the symptoms of "powerless labour," "exhaustion," &c., and as soon as it commences, those symptoms gradually follow which have been held as indicative of the necessity for artificial delivery, such as the rise of the pulse, dry tongue, hot skin, &c.; and in those cases where, after hard labour, these symptoms have occurred the uterus will be found in a state of permanent action, with the rare exception of those where the uterus was ruptured, or violent mental emotion has subjugated its power. This continuous action persists to the very verge of dissolution. In one case of arm presentation, where labour had lasted a week, and three attempts to turn had been made, the patient, when Dr. Hicks saw her, being scarcely able to articulate, and having her tongue very brown, and pulse 150, no change from the excessive rigidity took place, even under the influence of chloroform, till a few moments before death. So hard was the uterus in all its parts that it bore no resemblance to living contracting tissues. In this state Dr. Hicks believes the uterus becomes gradually irritated, and continuous action is set up so that though the pains may seem to have ceased, and may only occur at irregular intervals, it is really more active than before, tightly compressing the child, and falling into the inequalities of its form, whereby the child is prevented from escaping, every indentation of the uterus forming, as it were, a ledge past which it is difficult to draw it, or to pass the hand if we desire to turn. Once this condition is established it is rare that the rhythmical pains ever occur with such force as to expel the child, and sooner or later interference becomes necessary.

To distinguish these two conditions of quiescence and continuous action it is seldom necessary to do more than examine the state of the uterus through the abdominal parietes; but occasionally it may be necessary to pass the hand within, past the presenting part. In the first case the uterine walls are lax and flabby, and the fœtus is readily detected within, floating about with ease. In the other the uterus is hard and firm, and tightly moulded to the fœtus, which cannot be swayed about. This want of mobility of the fœtus is a distinguishing sign of the contracted state of the uterus. It occasionally happens that the fœtus, especially when dead, is rolled up into a globular form, having lost the ovoid. Percussion affords another sign. If the uterus be contracted there will be resonance up to the margin of the hard body. If it be lax, the dulness will extend beyond the edge of the hard body.

Dr. Hicks attributes this contracted state to exhaustion of the nervous power rather than to direct pressure on the soft parts of the mother, and he makes the following observations as to the treatment to be adopted, both when the uterus is relaxed and when it is contracted :—

"A proper consideration of these two forms of deficiency of the rhythmical uterine action enables us to decide upon the proper mode of treatment with great distinctness, and it will materially help us also to do so at any early period, earlier, indeed, than generally has been held possible.

"If it is true, as already stated, that when the clamping continuous action of the uterus has once begun, there is very rarely any hope that the rhythmical expulsive pains will again preponderate to such an extent as to expel the fœtus at least unaided; and as we know that the action of the ergot of rye is to cause this very action, if it fail to cause expulsive pains, and to increase it when present, it is clear that the administration of this drug should be avoided in this state of affairs. I am not prepared to affirm that it may not, in some few cases, again rouse the expulsive pains sufficiently to expel the fœtus, but its use must under the circumstances be attended with a degree of risk such as it seems very undesirable to incur.

"But if there be this objection to the use of secale and other uterine stimuli, there is, on the other hand, a clear and distinct indication in favour of operative interference; the mode in which it is carried out of course depending on the nature of the case, but that which is accomplished by means of traction would suggest itself as being the best, inasmuch as it would enable the fœtus to pass through the uterine grasp, and to distend the contracted portions.

"An example of this class of cases is not infrequently found in a primipara, in whom notwithstanding uterine pains have continued for a long time, no progress has been made. On examination it will be found that although the head of the child have escaped the os uteri, the shoulders are caught either by the os uteri itself, or by a contraction a little way above it. When the detention has continued a certain time, the rythmical pains gradually merge into the continuous form, and then it is very rarely that the fœtus is naturally expelled, particularly so if, secale having been given, it has failed to extrude it. Then unless timely assistance be given, the fœtal life is extinguished, symptoms of irritation, then of exhaustion come on, followed by putrid decomposition of the fœtus, and the patient sooner or later succumbs. Thus a comparatively small obstruction occurring, delivery by natural powers is made nearly impossible by the grasping uterine contraction. It matters not, however, in what part of the parturient passage the hindrance is situated, its position only affects the period and rapidity of the occurrence of the serious symptoms.

"There is no doubt but that in some cases where the case is taken early, the continuous action yields to the influence of chloroform, but inasmuch as this remedy also, in a certain degree, diminishes the expulsive pains, it is by no means certain that its use will be succeeded by progress; on the contrary, it may be said that, with the exception of contracted states of the os uteri, the cases are rare in which expulsion of the child would occur after its use in the circumstances just narrated.

"From a consideration of the above circumstances we may deduce the following as our rule both as to the time and the mode of our rendering assistance, namely:—

"If, on placing the hand on the uterus externally we find it firmly contracted around the fœtus between the pains (the observation of this point being made over a sufficient period); or if there being no pains we watch for sometime and find no relaxation, we may be nearly certain that further waiting will effect no good; and, therefore, in other words, it is worse than useless to postpone assistance any longer, and this rule will be still more distinct if we find the pulse rising, the countenance anxious, and much distress felt in the uterus.

"If on the contrary we find the uterus lax, then we may safely wait as long as the pulse be quiet; to this, perhaps, an exception may be taken, where in certain cases the head may be firmly impacted in the cavity of pelvis by the pains which preceded the state of relaxation. In such cases we might wait safely if we could push back the head a slight degree so as to remove the persistent pressure on the maternal soft parts, being of course ready to employ artificial aid if the recurring pains were not sufficient; otherwise, if much time elapse, it will be necessary to interfere to rouse the pains or draw the head through.

"Should the pulse rise, or vary much, or other general symptoms arise when the uterus is relaxed for some time, it is more than probable that some lesion has occurred, or some unusual condition has interfered, such as an attack of an exanthem, pneumonia, &c., for the cases are rare indeed in which "powerless labour" in Dr. Churchill's sense is present without the condition of continuous contraction having preceded it, if we except that state which is induced by violent mental emotions or rupture.

"It has been given as a rule by some authors that abstraction of the child should not be done unless there are pains present to assist the withdrawal of the child, secure the expulsion of the placenta, and keep the uterus well contracted after. To a certain extent this is a safe rule, but it is one which is indefinite, because the 'pains' may be absent, and yet the uterus very active, overactive indeed, as has already been pointed out, and even if it be not, yet it is found that when the head is drawn down the uterus does contract after.

"What are the explanations for these facts?

"Where there is the continuous action we may safely draw down the fœtus with proper rapidity without fear. The uterus contracts firmly on the receding contents, and even sometimes the rhythmical pains again are re-excited, and the placenta is expelled naturally the uterus remaining well contracted afterwards. Sometimes the uterus continues so firmly contracted after the withdrawal of the fœtus, that the placenta is held as firmly in its grasp as the fœtus was, so that it has to be removed by artificial aid.

"But where the uterine walls are relaxed, it doubtless is the best plan to endeavour to rouse the uterine action by oxytoxics, such as secale, &c., but it not infrequently happens that when the head is drawn down to the outlet reflex action is excited so much as sometimes to assist materially in the expulsion of the fœtus, and to secure the expulsion of the placenta and uterine contraction after. Yet the removal of the child under these circumstances is attended by some risk of hemorrhage, especially if the child be extracted too rapidly; and if the uterus does not respond quickly to the fresh irritation. It would be best in these cases to give a trial of secale first of all, and then if no action ensue, the head may be slowly delivered, and the remainder of of the body be allowed to remain for a time in the passages to stir up the uterine activity, while, in the meantime, we employ the various other means known to be capable of rousing expulsive pains; and this would be the rule in those cases where there is clearly such an obstacle to the birth of the child as in any case would demand traction, but where the pains had subsided and the uterine walls were lax.

"Thus we may briefly say that, in both cases of absence of the pains, we may do well (with due care) to use extraction. That *extraction* is peculiarly required in the cases where *continuous action* has supervened, while secale is detrimental; but that *secale* and uterine stimuli are of great service where the uterus is *relaxed;* while extraction (if adopted) should be employed with slowness and caution.

"It is proper to state that it is not intended to be said above that a contracted state of the lower segment of the uterus as revealed to the hand passed internally, necessarily implies a generally contracted condition, because the fundus might be coincidently relaxed, and if extraction were made suddenly, hemorrhage might occur above the constriction from the relaxed upper portion.

"The following is a *résumé* of the principal points desired to be established in the foregoing paper:—

"1. That it is very rare to find symptoms of 'Powerless Labour' (Churchill) where the uterus is relaxed.

"2. That where serious symptoms have begun, and at the same time the pains have apparently ceased, it will almost invariably be found that the uterus is in a state of continuous action.

"3. That the continuous action is the cause of the symptoms of 'powerless labour.'

"4. That the time at which these symptoms arise varies considerably according to peculiarity of the patient, the violence of the action, and position and presentation of the child.

"5. That if this constant contraction be fully established it is better to deliver the child artificially, unless we first try the effect of chloroform.

"6. That the effect of the continuous action is exhausting to the mother, and liable to be fatal to the child.

"7. That the use of secale is contra-indicated in such cases.

"8. Where the uterus is lax we can generally wait a considerable time without danger to the patient or to the child. When the uterus has been allowed time to recover its nerve force, then it is advisable to give some oxytoxic, as secale, &c. If this fail, we may then draw down the head to the vulva slowly and cautiously, which will probably induce uterine action. The removal of the child must be done cautiously, and only as we find the uterus to respond."—*Dublin Quarterly Journal, May* 1869, *p.* 452.

89.—ON THE USE OF OBSTETRIC INSTRUMENTS.

By Dr. Joseph Griffiths Swayne, Physician-Accoucheur to the Bristol General Hospital, and Lecturer on Midwifery at the Bristol Medical School.

In treating of obstetric instruments and their use, I intend to restrict my observations to those which are employed in assisting labour, and to give as much as possible the results of my own experience as to the best manner of using them. I propose taking the stages of labour in the order in which they occur, and describing the instruments which are adapted to each. In the first stage of labour artificial assistance is scarcely ever necessary, because delay in this stage seldom arises from mechanical obstacles, and is very rarely dangerous as it is in a protracted second stage. Still, however, it is sometimes necessary to have recourse to artificial dilatation of the os uteri. The cases requiring such aid are of three kinds. In the first class of cases we have to anticipate nature, and commence dilating the os uteri artificially; as, for instance, in the induction of premature labour. In the second class, we have to assist the powers of nature when they are inert and sluggish, or when they meet with a greater mechanical obstacle than they can overcome, as in protracted first stage from inefficient uterine action, or from rigidity of the os uteri. In the third class, we are obliged to hasten the natural process of dilatation on account of complications, such as convulsions, which render a speedy termination of the labour necessary. The instruments for accomplishing these purposes are various. They effect their object as dilators by powers of expansion which are the result either of inherent elasticity, or of their capability of being distended by fluids injected into them. Accoucheurs have at different times invented a great variety of these dilators; but those which have now come into common use are of three kinds, and have all in turns been employed by me according to the exigencies of each particular case. When the os uteri is so contracted that it will not admit the tip of the index finger, dilators of the smallest and most rigid kind must be had recourse to. For this purpose none are so good as tents made of the dried stem of the sea-tangle (*Laminaria digitata*). These are much more expansible, and therefore much superior to those made of gentian-root, which, until lately, were more commonly used than any other vegetable substance for the purposes of dilatation. They are readily obtained at most surgical instrument makers' shops, where small boxes are usually sold containing ten or a dozen pieces of tangle, most of which are about one and a half inch in length, and about the thickness of a porcupine quill. When one of these pieces of tangle is inserted into the os uteri, and left there for some hours, it will imbibe moisture and swell to the size of a man's fore-finger. They are easily introduced into the os uteri, but not so easily retained, for their hard polished surface causes them to be readily extruded, and it is generally necessary to keep them *in situ* by means of a plug. The best mode of introducing them is to pass them up through a full-sized speculum, by means of a dressing, or polypus-forceps. A soft silk handkerchief, previously well oiled, should then be passed up to keep the tent *in situ*, and the speculum withdrawn. Some improvements have of late years been made in the laminaria tents; for instance, Dr. Greenhalgh, at one of the meetings of the Obstetrical Society, in 1865, exhibited a new form of Uterine Tent, made from the stem of the *Laminaria spiralis*; the peculiarity being, that it was a hollow tube instead of the solid stick heretofore used; and, at a subsequent meeting in the same year, Dr. Barnes showed an instrument made for him by Messrs. Weiss, for the purpose of facilitating the introduction of the perforate dlaminaria tent. It consisted of a wire stem, on which the tent was mounted, connected with a flexible tube like a catheter. The tent thus supported was introduced into the os uteri as easily as an uterine sound, and being there, by pushing up the flexible tube, the wire was withdrawn from the tent, leaving this *in situ*.

In cases, however, which require a greater amount of dilatation, something more efficient than the tangle tents must be used, and for this purpose nothing is better than pieces of compressed sponge. These may be made of various sizes and lengths, from an inch long, for instance, to as much as two inches and a half. They may be bought ready made; but, for my own part, I always prefer making them myself, which I do in the following manner. Having selected a conical piece of sponge of firm texture, and not exceeding two and a half inches in length and two in thickness at the base, pass a strong loop of tape through the base of the tent. This is for the purpose of withdrawing it after it has dilated to its full extent. The sponge, previously well washed and cleansed, is then to be dipped in a solution of gum arabic of the consistence of thick syrup. A metal stilette, previously well greased, is then to be thrust down its centre from the base nearly to the apex. For this purpose an ordinary kitchen skewer will answer very well. The sponge is then to be compressed firmly by a piece of strong whipcord, which is to be rolled round it very tightly in regular spirals, lying close to each other, from the apex to the base of the cone, where it is fastened off, much in the same way as a boy would wind a piece of string round a peg-top. After this the tent is to be put in an oven or on the hob of a fire-grate and left until it is quite dry. The cord is then unwound and the stilette withdrawn. After the inequalities on its surface have been removed by a rasp, the tent should be smeared with cerate or with spermaceti ointment, and is then ready for use. To apply it, it should be mounted on an uterine or an ordinary metal sound. If the os uteri be very high and the tent required be small, it will be more convenient to pass it up through a full-sized tube speculum. If, however, the os uteri be somewhat dilated, so as to admit one or two fingers, the tent required will be too large to introduce properly in this way. The best plan, then is to place the woman on her left side, in the ordinary obstetric position. Having inserted the tips of the fore and middle fingers of the left hand into the os uteri, pass the tent up along the groove between the two fingers into the os uteri nearly as far as the base of the cone. A silk handkerchief, well oiled, is then to be introduced into the vagina as a plug to keep the tent in its place. When the plug can be inserted through a speculum the operation is rendered much easier, and is much less painful for the patient. After the tent has remained some time in the os uteri it absorbs the moisture secreted by the part, the gum arabic is slowly dissolved, and the sponge, thus released from the power which held it together, swells by its own elasticity to four or five times its bulk in the dried state, and thus most effectually dilates the canal of the cervix. There is one great objection to sponge-tents, however, and that is the horribly offensive odour which they acquire after they have been retained many hours in the vagina; and there is, indeed, some danger from absorption of the putrid discharges which are thus kept in contact with the mucous surface. On that account I make it a rule never to leave one of these tents longer than twelve hours in the cervix uteri, but always remove it before that time, and substitute a fresh one if required. Certain improvements have recently been made in the sponge-tents, principally with a view to obviate this inconvenience. For instance, Dr. Aveling deodorises them by introducing into their central canal about two grains of finely powdered permanganate of potash, and this is found to answer the purpose very well. Mr. Ellis prefers carbolic acid, and uses the cacao butter or oil of theobroma, in preference to mucilage of gum arabic, for keeping the tent together. About a drachm and a half of pure crystalline carbolic acid is to be mixed with an ounce of the butter, whilst kept in a fluid state by being held over a small flame or placed in a hot water bath. In making the tent, the dried sponge is to be folded round a metal stilette, and compressed by winding tape round it. It is then to be immersed in the melted cacao butter "for a few seconds, so as to saturate only the outer layer of the sponge, and this it does, penetrating readily through the tape The tent is then placed in a very cool place, and, after it has solidified, the tape is cut and unrolled. All that is now necessary to complete it is to dip it once more into the same preparation—which for this latter purpose must be much cooler than before, and of about the consistency of cream. By this means a smooth and uniform covering is given to the tent, and it is ready for use." (Obstetrical Transactions, vol. ix.) Mr. Ellis lays great stress upon the advantages of making these tents of an ovoid form, so as to adapt them more readily to the shape of the cervical canal, and of a length not exceeding two inches.

By far the neatest and most ingenious method of dilating the os uteri is by the use of elastic bags into which water can be injected. We thus obtain a close imitation of the dilator which nature employs during the first stage of labour, viz., the bag of the waters. The best bags for this purpose are those which have been recommended by Dr. Robert Barnes. They are made of caoutchouc, and are of a fiddle shape, having, when distended a narrower, cylindrical, central portion, dilating at each end into a bulging expansion. The object of this is to prevent the bag from slipping forwards into the uterus or backwards into the vagina. The bag is prolonged into a long narrow tube, with a stop-cock at the end to keep in the water when injected ; the injecting medium is the ordinary Higginson's syringe. Three bags of different sizes are sufficient. To facilitate the introduction of the flaccid bag into the cervix uteri, a small pouch is attached outside, to receive the end of the uterine sound, which, guided by the finger of the left hand applied to the os uteri, serves to push the bag into the cervical canal. I have myself frequently employed these bags, and have found that, when they can be applied, they dilate the os uteri more speedily and certainly than any kind of tent ; and they have this advantage also, that the vagina need not be plugged to keep them in place. The chief objection to them is the difficulty which there is in introducing them when the os is not in the slightest degree dilated. This can be readily understood when we consider that the bag has to be folded round the sound before it can be introduced ; and it is always better to use the largest sized metal sound which can be procured, in preference to the ordinary uterine sound, because the extremity of the latter, being smaller, is much more likely to be forced through the India-rubber pouch which receives it.

The next subject for our consideration is the class of cases which require artificial dilatation of the os uteri. And the first cases which naturally engage our attention are those in which it is advisable to induce premature labour. Now, it is by no means necessary that the os uteri should be artificially dilated to induce premature labour, for we can bring on uterine contractions by the old methods of puncturing the membranes, or separating them partially from the uterus, or by the administration of the ergot of rye, or by the more modern plans of injecting water, or passing up a foreign body, such as a catheter, between the membranes and the uterus, or by electricity or galvanism. Nevertheless, I believe that in theory it is much more scientific to imitate nature and commence the labour by dilating the os uteri, than to invert the process and induce expulsive action previously to dilatation ; whilst, in practice, it is undoubtedly much safer for the child, and most probably for the mother also. I therefore always commence the process by the dilatation of the os uteri, and for this purpose I begin with a small sponge or (if the os be very contracted) tangle-tent. After this had been left in the canal about ten hours, I remove it, and introduce a sponge-tent of larger size ; and so on, leaving each tent in for about the same time. It usually requires three of these tents to dilate the os uteri to the size of a crown, and at least thirty hours will generally elapse before uterine contractions take place. If it is desirable to complete the labour more speedily, we may do so with the elastic bags ; but on the whole, I prefer in most cases the more slow but sure action of the sponge-tents. I usually find that when the os uteri is pretty well dilated efficient pains will set in ; but, should this not be the case, they may be excited by puncturing the membranes and giving ergot. I do not think it is safe to continue the dilating process more than three days, as the long-continued presence of the tents is not unlikely to produce great irritation and inflammatory softening of the uterine neck. I once saw a case in which rupture of the uterine neck, ending fatally, was in all probability due to this cause. It was necessary in this case to induce premature labour at the end of the eighth month. For that purpose sponge-tents and India rubber bags were used, but the os uteri was high and the dilatation difficult, and the process occupied nearly a week. At the end of that time, violent pains came on, and the child, which unfortunately presented transversely, was expelled without assistance in a doubled state. The great strain was too much for the already weakened fibres of the uterine cervix.

The next class of cases admitting of artificial dilatation are those in which the first stage of natural labour is protracted, either from inefficient uterine action or from rigidity of the os uteri. In by far the greater number of these instances, as all here present can testify, time and patience are the sole requisites, and the issue may be left to the powers of nature, which will at last accomplish her object safely. Nevertheless, we occasionally meet with an os uteri so minute or so unduly rigid as to require artificial dilatation. For this purpose, no dilators are so good as the caoutchouc bags, provided the os uteri be large enough to admit the tip of the forefinger. If it is too minute for this, it will be necessary to commence the operation with a tangle-tent.

In the third class of cases, artificial aid is required for the purpose of hastening the natural process of dilatation, on account of some complication of labour, such as convulsions, which render speedy delivery necessary. In these cases the quickest method is the best, and no dilators are so good on that account as the elastic bags. The first size can generally be used, for the os is always dilated to some extent, accoucheurs being mostly of opinion that it is not good practice to deliver artificially, in such cases, unless some symptoms of labour have already set in. I witnessed a case of puerperal convulsions not long ago, in which these bags were of the greatest service in thus shortening the first stage of labour.—*British Medical Journal, Jan.* 23, 1869, *p.* 72.

90.—ON THE USE OF THE SHORT FORCEPS IN MIDWIFERY PRACTICE.

By Dr. Thomas More Madden, Assistant Physician to the Rotundo Dublin Lying-in Hospital.

[Having ascertained that the rectum has been properly cleared out, and the catheter having been used, a digital examination must be made to ascertain the exact position of the head.]

The operator now sits down besides his patient, facing the perineum, and introduces the index and first fingers of his right hand, previously smeared with lard, up into the vagina behind the symphysis pubis, and passes them round half the circumference of the pelvis on the child's head, until he comes in contact with the ear, which is generally towards the left iliac region, and sometimes on the right or towards either side of the pelvis. The ear should always be felt distinctly before the short forceps are introduced, and although some recent writers do not approve of this rule, yet I always act on it in my own cases.

The reasons for applying the forceps over the ear are, that the instrument, fitting better over the sides of the head and face, exercise a more equable pressure on the head, and are less liable to slip than when placed in any other position.

Before being introduced, the forceps must be brought as nearly as possible to the temperature of the body, and it is usual to immerse them in warm water for this purpose before they are applied. However, everything that adds to the fussiness of those about the patient should be avoided; and for this reason I now follow the practice recommended by Dr. Johnston, and never exhibit my instruments until I am applying them. The forceps will be sufficiently warm, if the practitioner keeps them, as I always do, in a pocket constructed for the purpose in his waistcoat, and my forceps are so small that there is no inconvenience in this.

The instrument is now to be smeared with lard, and the upper blade, the first to be introduced, is taken in the operator's left hand, and, being held as lightly as a writing pen, is, during an interval in the pains, to be slowly insinuated by a gentle, wavy motion, between the two fingers of the accoucheur's right hand, which, as I have already said, rest over the ear and the child's head, until it has passed so far up that the lock lies close without the perineum. The anterior, or pubic blade, is always introduced first in this hospital, but in England the reverse is generally the case. The instrument must, in the first stage of the process, be passed upwards and backwards in the direction of the lower axis of the pelvis, but almost immediately it must be turned in the axis of the upper portion of the pelvis, upwards and forwards.

The point of the blade is to be kept in contact with the fœtal head, as the moment it diverges from it, the least degree of force might drive the instrument through the vesico-vaginal or recto-vaginal wall, the direction of the point being determined by the angle at which we keep the handle, so that except at the moment that the instrument passes over the ear, when the handle must be depressed a little during the introduction of the blade, the handle should be gradually raised as the forceps slides over the convex head of the child.

The handle is then to be given to an assistant to retain *in situ;* the operator, holding the instrument with the right hand, introducing two fingers of the left in the same manner as before, passes up the other blade of the instrument, until the locking parts of both are opposite each other, when, having passed the finger round the lock to guard the soft parts from being caught by it, the forceps may now be locked.

In locking the forceps, as in its application, force is unnecessary and unjustifiable. If the blades have been properly introduced and applied to the head, there will be no difficulty whatever in locking them. If they are not properly adjusted, no degree of force can be of the least use, and as it is essential that the forceps be properly locked before any attempt at extraction is made, if there should be any difficulty in locking, no time should be lost in trying to bring the the instrument into apposition, but the blade last introduced must be at once withdrawn, and reintroduced in the right position.

The extraction of the head is generally the easiest part of the operation. The operator, bearing in mind that the axis of the pelvis is a curved line, the axis of the inlet being downwards and backwards, and that of the outlet being downwards and forwards, makes his traction to correspond with this. At first he pulls downwards and backwards, and, as the head descends, alters the direction of his force until the head comes to distend the perineum, when he draws the head directly forwards.

As a rule, delivery with the forceps should be as close an imitation of natural labour as possible,—that is to say, bearing in mind that in natural labour the advance of the head is so slow and gradual, that the progress effected by each pain is almost imperceptible, the forceps should be so gently used as to imitate in the slowness of its action the course which nature herself points out.

The powers of the instrument should be exerted in the most gradual manner, except in certain cases of complex labour where immediate delivery is essential, and no attempt at finishing a tedious labour by any sudden and forcible effort is justifiable; nor should any desire to relieve his patient from suffering, or himself from a wearisome task, induce the practitioner to attempt by force what time, patience, and skill, can alone safely accomplish.

The old rule of waiting for a pain before commencing to draw down with the forceps, and of acting in concert with the uterine expulsive efforts, is obviously well founded, and should be acted on whenever the pains have not ceased before the forceps have been applied.

As soon as the occiput escapes from the vulva, it is generally advisable, in order to prevent the risk of lacerating the perineum, to trust the case to nature, and if there be sufficient uterine action to accomplish the labour, the instrument should now be unlocked, and the posterior and then the anterior blade gently removed, and the head forced out by pressing well on the perineum during the pains.

After the head has descended into the pelvic cavity, the short forceps may be used in three different positions.

1st. Where the head is delayed at the outlet, the face lying in the hollow of the sacrum, the occiput under the arch of the pubis, and the sagittal suture lying in the perineum, the ordinary position at the end of the second stage of natural labour.

2nd. When the labour is delayed by the malposition of the head, the face being turned forwards towards the symphysis pubis, the occiput and vertex being opposed to the sacrum and perineum.

3rd. Where the face lies to either side.

In the first position, delivery according to the rules already laid down is generally easy enough. In the second variety of position, the lock will be at the vertex and the point at the chin, and, by depressing this, the occiput will be drawn forwards from the perineum. The management of the third position demands no special mention.

Forceps cases require to be very carefully watched during the period of convalescence after labour. As a rule, if the operation has been properly performed, the recovery of the patient will be as speedy and perfect as after a natural labour. But, even after the best obstetric operations, peritonitis, metritis, puerperal fever, inflammation of the pelvic structures may follow an instrumental delivery. This fact should be borne in mind, so that the moment the earliest premonitory symptoms of any of these diseases manifest themselves, they may be at once met with the appropriate treatment. After all cases of protracted labour, and especially after forceps cases, the state of the urinary function should be watched closely for the first few days, and if there be any retention, the catheter should be used at least twice a day.—*Medical Press and Circular, April* 22, 1869, *p.* 241.

91.—THE USE OF OBSTETRIC INSTRUMENTS.

By Dr. THOMAS SAVAGE, Professor of Comparative Anatomy in Queen's College, Birmingham.

It seems remarkable that until quite recently, so few practitioners should have advocated the more frequent use of the forceps in midwifery, except in difficult cases, such as the older writers describe. Mr. Steele, of Liverpool, Dr. Hardy, of Manchester, and Dr. Swayne, in the Journal of May 29th, have given the results of their experience, which is decidedly in favour of their use in cases where, as Mr. Steele says, "the second stage of labour ceases to be actively progressive, excepting, of course, when contraction or distortion of the pelvis necessitated turning or craniotomy, or where the os uteri is only partially dilated, and at the same time undilatable."

My own experience, though limited, is so decidedly in favour of this practice, that I am induced to record it. The following table will show my practice.

In 1864,	out of	73	labours,	forceps were used	3	times	or 1 in $24\frac{1}{3}$
1865	,,	154	,,	,,	15	,,	or 1 in $10\frac{1}{3}$
1866	,,	173	,,	,,	18	,,	or 1 in $9\frac{2}{3}$
1867	,,	203	,,	,,	37	,,	or 1 in $5\frac{2}{3}$
1868	,,	204	,,	,,	31	,,	or 1 in $6\frac{2}{3}$
Total		807			104		

And of these 807 cases, five children were still-born; and one maternal death occurred from puerperal fever, which was, as far as could be seen, in nowise traceable to the means used to accomplish delivery. In comparison with this, I may give the statistics of the Royal Maternity Charity, as quoted by Dr. Ramsbotham, where, out of 48,996 deliveries, forceps, long and short, were used 73 times, or once in 671·2 cases; and out of these 73 applications, 17, or 1 in 4·05, children were still-born, thereby showing that their use was not resorted to until the head had been for a long time subjected to excessive pressure. In none of my cases have I found any ill effects afterwards, such as laceration of the soft parts, or extensive rupture of the perineum, &c.; and I cannot but think that more children would have been still-born if instrumental aid had not been forthcoming. The occipito-posterior presentation appears to offer most difficulty in effecting delivery; and Tyler Smith says that in these cases the head should be slowly rotated during the process of extraction, so as to bring the vertex towards the pubic arch, and thus convert them into occipito-anterior presentations; a proceeding which, to myself, has seemed very easy in a diagram, but to be attended with some difficulty in practice.

Nearly all my cases have been those requiring short forceps; and in most, labour would have been terminated by the natural powers, if I had not thought that much pain, anxiety, and exhaustion would be spared, especially in primiparæ. In the use of the long forceps, few practitioners will differ as to the cases, or the time, when they should be applied; viz., when there is moderate contraction at the pelvic brim, preventing the head from entering the cavity, and generally in the antero-posterior diameter, or where, from some accidental circumstance, such as convulsions, hemorrhage, &c., delivery ought to be effected immediately, while the head is still above the brim, or has only just entered the pelvis. These do not seem to be of very frequent occurrence. I can only recall about five cases out of the numbers given above. In a recent case I had the occipito-posterior presentation in addition to extraction from above the brim, which made the case a little more difficult, as it did not seem possible to diagnose the exact presentation before the forceps were applied.—*British Medical Journal, Aug.* 14, 1869, *p.* 183.

92.—THE USE OF FORCEPS IN VARIOUS COUNTRIES AND BY DIFFERENT MEDICAL MEN.

In Great Britain forceps are reported to have been resorted to in 1 out of 249 cases; in France, 1 out of 140; in Germany, 1 out of 106.

Simpson has used them in 1 out of 472; Collins 1 out of 720; Baudelocque, 1 out of 561; Ramsbotham, 1 out of 611; Madame La Chapelle, 1 out of 293; Madame Boivin, 1 out of 214.—*New York Medical Record, July* 15, 1869, *p.* 228.

93.—ON PUERPERAL FEVER.

By Dr. Beatty, Dublin.

[The following is taken from some remarks by Dr. Beatty upon a paper by Dr. Kennedy of Dublin, on lying-in hospitals.]

There are two modes by which metria or erysipelas obtains an entrance to the chambers of lying-in women, whether in private houses or hospitals, viz., epidemic influence and contagion. If the disease is epidemic it will made its way into the large hospital or isolated hut as surely as it does into surgical hospitals or private houses; and the woman who has recently undergone the operation of parturition is, to say the very least, as liable to its assault as any patient, male or female, who has been the subject of a wound, either accidental or intentional, by the surgeon. We know that during the prevalence of such an epidemic no surgeon will perform any operation that he can possibly avoid. But the pregnant woman cannot postpone her operation. If we had the power of suspending nature's operation as the surgeon has to withhold his knife until "the pestilence that walketh in darkness" has passed over the land and vanished, the death-rate from metria would soon dwindle to a very low figure. But although we are powerless to shut out this first mode of infection, we are not so in the second. Contagion can be met, and the door can be shut in its face. To see how that can be done let us inquire who attend the patients in a lying-in hospital? A class of pupils chiefly composed of medical students. Again, let us inquire how these gentlemen are employed during the day when out of the lying-in hospital? They have their medical and surgical hospital to attend in the morning, when they are of course exposed to any malaria prevalent in the wards; and if they are dressers in the hospital and have to come in contact with wounds and ulcers, and compound fractures, many of them perhaps surrounded with erysipelatous inflammation, they necessarily carry away a certain amount of infection. If they pass from the wards to the dead-house, and there take part in *post-mortem* investigation, passing a considerable time with their hands buried in a diseased and putrifying abdomen; if from that they proceed to the dissecting-room and there pass hours in the contaminated atmosphere of such an apartment, and in direct contact with flesh in every stage of decomposition; if such be the ordinary daily course of a medical student, I ask is such a person fit to walk into the wards of a lying-in hospital and attend a woman in labour in the evening? All who hear me know that this is not an overdrawn case. But when this source of danger is multiplied by six, eight, or ten pupils who have pursued the same course during the day, and frequent the same lying-in hospital during the evening and night, and then with laudable zeal to learn midwifery, examine every woman that may be in labour; if this takes place during a run of erysipelas in the surgical hospitals and while epidemic influence is abroad, and thus both doors are opened for the entrance of disease, how can we be surprised that fatal erysipelas so often makes its appearance. The wonder is not that some women die but that the number is not vastly greater. Now this is a danger against which no isolation of the patient in huts can protect her. My unfortunate patient, with whose case I opened these remarks, was in a most perfect state of isolation, nevertheless she fell a victim to erysipelas conveyed to her by her attendant; and every patient in any series of isolated huts that could be constructed would be equally exposed to contamination when their attendants were composed of a class of pupils such as I have described.

That metria is more prevalent now than it was forty years ago is a fact too well known; and why is it so? I think there are two causes in operation sufficient to produce this result. The first is the change in the type of disease which has taken place in this country in late times. All diseases have assumed a typhoid or asthenic form now-a-days, which was rare and the exception in the early part of this century. The kind of disease which then prevailed is, I may say, extinct. The true inflammatory fever—the synocha of Cullen—is now unknown; the pupils of the present day know as little about it as they do of phlebotomy and the use of the lancet. Inflammations which then appeared with full bounding pulse, flushed face, and burning skin, no longer present themselves, actually courting depletion; the same diseases are now all of the low typhoid type, in which depletion is inadmissible and stimulants are demanded. Hence it is that inflammations in lying-in women generally assume the ersipelatous instead of the phlegmonous form, and the results are more generally fatal.

The second cause is the difference in the class of midwifery students. It is only of late years that practical midwifery has been made a compulsory part of the curriculum for medical and surgical degrees; formerly, when I was a student, it was not so; and when I was a Fellow of the College of Surgeons and an M.D., I had never seen a lying-in woman. The practice then was not to attend the lying-in hospital until after all other school and hospital attendance was over, and many of the class were already graduates. You will readily perceive how a class thus constituted was less likely to carry erysipelas into hospital than are the classes of the present day. Great stress has been laid by Dr. Kennedy on the immunity from disease enjoyed by the maternity hospitals in New Ross, Waterford, and Limerick; but before we allow the superiority claimed for these institutions because they are small, we should ascertain who were the attendants upon the patients delivered therein. Now, we all know that there is no such class of pupils in these localities as I have just described; the women were most probably attended by resident midwives, with the assistance of a resident physician under the direction of the visiting medical officer; and with this absence of the means of daily importation of disease from without, the parallelism of these hospitals with the larger, where a large class of pupils are the attendants, is destroyed, and the argument founded on their salubrity ceases to be of much value. Another and probably not unimportant cause may be assigned—I allude to the more frequent *post mortem* examinations that have been made of late years. Pathology, as is well known, has been cultivated with considerable ardour during the last half century, and this laudable desire to accumulate facts and extend the boundaries of knowledge was partaken of to a considerable extent by the masters of the Rotunda, and by none with more vigour and industry than Dr. Kennedy. There was no Pathological Society in former times to which specimens could be brought by those interested in science, or ambitious of obtaining a reputation for observation and industry; there was no temptation to pry into every cavity in every patient that died in any hospital, so forcibly described by Dr. Arthur Jacob in one of his allusions to the Pathological Society of this city, which he never loved. Speaking of the manner in which subjects for dissection were mutilated before they were suffered to leave the hospitals, he described the investigators as "actually trawling for specimens." The Pathological Society of Dublin had been just recently established when Dr. Kennedy was Master of the Rotunda Hospital; and I have a lively recollection of the number and value of the specimens which he produced at our meetings. If Dr. Kennedy looks back to those days, as I have done, it is not improbable that he may attribute some of the serious mortality that occurred in the hospital during his mastership to the zeal with which he and his assistants cultivated pathological knowledge in the dead-house.

I have said that contagion can be met at the threshold of the hospital and forbidden to enter. I said so in a lecture delivered thirty years ago in the Medical School in Park-street. I then expressed my firm conviction that midwifery ought not to be studied practically until after the pupil had obtained his diploma, and that during the six months of his attendance he should attend no other hospital. I argued that to follow this course would be also most beneficial to the student; that with his mind unencumbered by other pursuits he could then give his whole time and attention to the acquirement of a real and sound knowledge of this branch of medicine, and not leave the institution with the superficial and crude ideas of its importance with which, under the present system of hurry, they are obliged to be content. That opinion has been strengthened by time; and, like Dr. Kennedy's thirty years of incubation, I now produce my egg fully hatched.

Midwifery must be learned, and can only be learned by practical experience; but it is not to be learned at the expense of the lives of the patients. I would allow no pupil to attend to any maternity institution while he was in attendance on any other hospital or dissecting-room. Theoretical lectures on medicine and surgery, and all the other branches not bringing him in contact with dead bodies or disease he might attend, but a strict rule enforcing absence from the sources of infection should be at once instituted and rigidly enforced. This may cause a little delay and inconvenience to the pupil, but is that to be put in comparison with the preservation of the lives of the patients? Again, I would have no person in the institution, whether pupil, assistant, or master, take part in *post-mortem* examinations; but a separate officer, who would never enter the wards, should be attached to each institution, upon whom the duty of necroscopist should devolve. I firmly believe that the adoption of these suggestions would cut off the second mode of contamination to which I have asked your attention—viz., contagion, and that the assaults of metria would be confined to the first or epidemic influence, or the unhappy reception of a patient in whom disease has already commenced. Against epidemic influence no human barrier can be set up, either in palace, hospital, house, or hut, except ventilation and scrupulous cleanliness, both of which are rigidly enforced in the institutions of this city. I would finally recommend a good generous dietary to be established in all maternities, as a sure means of enabling patients to resist the demon metria.—*Dublin Quarterly Journal, August* 1869, *p.* 305.

94.—ON THE PRODUCTION OF PUERPERAL FEVER BY INOCULATION BY THE ACCOUCHEUR.

By Dr. M'Clintock, President of the Pathological Society of Dublin.

Though but a limited contagionist, still I hold very strongly the producibility of puerperal fever by inoculation; as, for instance, where the hands of the accoucheur or nurse retaining some necroscopic matter or septic poison of any kind, come in contact with the highly absorbing surfaces of the maternal canals. The experience of Dr. Semelweiss at the Vienna Lying Hospital is, no doubt, familiar to you all, and needs no further mention in this place.

I cannot help thinking that if students, while attending at lying-in hospitals, were precluded from dissecting, or from being dressers at surgical hospitals, it would help to lessen the frequency of puerperal fever. I also think it would be well if the medical officers of lying-in hospitals were to abstain altogether from taking any share in post mortem examinations. I very much blame myself for not having rigidly acted on this when I had medical charge of the Rotunda; but, unfortunately, the anxiety to secure a specimen for the class or the museum had undue weight with me. I also venture to surmise, with Dr. Kennedy's permission, that his zeal, too, in the pursuit of pathological knowledge—a zeal which is amply attested by the splendid museum he formed—may have helped to swell his hospital mortality. Now that I am in the enjoyment of the honour of being President of the Pathological Society, there is no need to hide my opinion, that the man who devotes himself to obstetrics should abjure the study of pathological anatomy.—*Dublin Quar. Journal, August* 1869, *p.* 261.

95.—TURPENTINE IN UTERINE HEMORRHAGE.

By Edward Garraway, Esq., Faversham.

Mr. Bradley, of Martley, near Worcester, a few years since published some very valuable records of the utility of turpentine in hemorrhages of all kinds. As a restorative in certain states of prostration, specially such as occasionally arise during the puerperal state, it is no less serviceable. Sometimes after a severe labour, accompanied or not with hemorrhage, great debility will ensue about the third day, characterised by a rapid pulse, tympanitic abdomen, and other symptoms not connected with peritoneal or other fever, yet threatening the advent of a typhoid condition. Here turpentine, both as an injection and by the mouth, is invaluable.

A recent case, in which the patient was apparently snatched from the jaws of death by the timely administration of this remedy, may be worthy of record.

Mrs. —, aged 28, in her first labour, was confined of twins on May 3rd. She was quite exhausted after the birth of the first child, and the uterus was only roused to expel the second by giving ergot, after which no further contractions occurred. No compression nor kneading of the organ would induce it to throw off the placentæ, An hour elapsed; and not liking to give more ergot, I passed my hand into the uterus, and found both placentæ entirely adherent. They were removed easily, and no blood was lost, though, subsequently, there was some slight hemorrhage.

Mrs. —, remained weak, and was ordered a more liberal dietary than was usual.

On the third morning, I was sent for to see her dying. My first impulse on entering the room, was to call her husband upstairs to take leave of her; my second, to attempt her restoration. She was bathed in a cold sweat, perfectly insensible, and breathing by hurried gasps; her pulse 140, was just perceptible, one hand was becoming blue and shrivelled. The tale they told me was this. Mrs. — had been permitted, contrary to my orders, to put the children to the breast. An hour and a half afterwards, the nursed perceived—as she termed it—"a great change," and sent for me. Having a stomach-pump and turpentine with me, I immediately passed the œsophagus-tube as far as possible up the rectum, and injected an ounce or more of turpentine diffused in mucilage, and, at the same time, covered the abdomen with hot flannel sprinkled with turpentine. In four or five minutes, the respiration became freer, an occasional sigh was heaved, which appeared to do immense good by more fully inflating the lungs. Soon, the eyes opened and wandered round the room. Deglutition now became possible, and a teaspoonful of brandy with ammonia was got down, followed quickly by an egg, beaten up with brandy, sugar, and milk: and now the patient fairly rallied. I left her in an hour or two. At my next visit, she had not the slightest recollection of my having seen her or done anything for her that day. I believe the injected turpentine lighted up the dying embers, and enabled the stomach to receive the subsequent fuel which was laid on, of course with no unsparing hand.—*British Medical Journal, July* 10, 1869, *p.* 31.

96.—SUBCUTANEOUS INJECTION OF MORPHIA AND ACONITE IN CONVULSIONS AFTER LABOUR.

By Dr. R. M. BOWSTEAD, High Wycombe.

[The following cases are extremely interesting. They would have been more so could we say how much of the good effect is to be attributed respectively to the aconite and to the morphia.]

A. C., aged 19, was delivered of a full-grown child at 10 o'clock on the morning of the 10th of April. Her labour was rather tedious, but natural, and I left her very comfortable. At 7 p.m. I was sent for, and found her in a fit of convulsions, held down by four assistants. I applied cold to the head, and gave her full doses of antimony. At 10 p.m. the convulsions still continued. I administered a turpentine enema. At 1 a.m. convulsions as bad as ever. I applied a mustard poultice to the neck, and hot water bottles to the feet. At 3 a.m. the convulsions had ceased; but the patient was delirious, and wanted to destroy her child. In about an hour the convulsions returned, and at 7 a.m. I found her as bad as ever. I gave her a small dose of morphia to procure a little sleep if possible, but to no purpose. All the day her convulsions continued. I had the head shaved, and ice applied. She could take no support. At 7 p.m. I found her sinking; her efforts to get away from those who held her had exhausted her. I therefore injected in the arm two minims of aconite (Fleming's) and one-third of a grain of acetate of morphia. In less than five minutes all the convulsions had ceased, and she was quietly sleeping. She slept for eight hours, during which time she perspired most freely, and on awaking asked for food. The rest of the treatment consisted of good support, and in three days she was convalescent.

About a month ago she was delivered of another child, and has done well.

J. H——, aged twenty, was delivered at 5 a.m. of a well-developed child. The labour was natural. At 10 a.m. I was sent for to see her. I found her held down to the bed, she struggling fearfully, and attempting to tear her bandage off. She was much exhausted by her struggles, and foamed a great deal at the mouth. I could not get her to swallow anything, and at once injected into the arm the aconite and morphia. In a minute all the convulsions had ceased, and her arms fell down to her side. She slept quietly for seven hours. When she awoke I ordered her beef-tea, with a little brandy if faint. She had no return of convulsions, and when I saw her on the second day she was convalescent.—*Lancet, May* 29, 1869, *p.* 747.

97.—ON ENDOSCOPIC EXAMINATION OF THE CAVITY OF THE WOMB.

By Dr. D. Commander Pantaleoni, Paris.

[We can hardly yet say what revolutions the more extended use of the endoscope may make in our views concerning the pathology and treatment of diseases of such an organ as the womb, but judging from the analogy of the discovery of the stethoscope, ophthalmoscope, and laryngoscope, we may certainly anticipate some innovations.]

The discovery of the ophthalmoscope and larygoscope led to the invention of another instrument, the *Endoscope*, directed to the examination *by vision* of the internal organs, where no common light can be thrown, as it can be done in the examination of the larynx or of the eye. A further difficulty accompanied therefore the invention of this instrument; the necessity which existed of throwing a considerable quantity of light in an internal dark cavity, and that generally to be done through a narrow tube, as those organs do not generally communicate externally, but by narrow canals. Dr. Desormeaux, of Paris, was, undoubtedly, the first who invented a good instrument for this object, to which he gave the name of *Endoscope*, and Dr. Cruise, of Dublin, improved it very much by the introduction of a better light, and in a way of preventing the instrument from becoming heated by the burning of the light. It is always the instrument of Dr. Cruise that I have employed in my practice, and I am so well satisfied with it, that I owe a public testimony of thankfulness to its inventor, for the kindness with which he treated me in Dublin, and his willingness to show to me the employment of this instrument on several cases.

It was with Dr. Cruise's endoscope that I first examined a lady, who declared to me that she had been affected for nearly thirty years with a chronic coryza, or catarrh of the nose, and chiefly on the left nostril, and which no physician had succeeded in curing. It was not difficult to imagine first, and discover afterwards with the aid of the endoscope, the beginning of a polypoid vegetation on the mucous membrane of the nostrils, and through repeated cauterisations, and the injections of astringent liquid, to cure entirely an affection most troublesome, and which had made the patient very miserable.

It was three years afterwards, that the same lady aged about 60, consulted me to know if it was regular at her age to still loose blood by the vagina, as she was doing so daily, although in a small quantity. I declared immediately that she had most probably some fungous vegetations on the mouth and cervix of the womb, and I proceeded to an examination with the speculum, having already prepared everything to perform the cauterisation, if the case required it. Unfortunately, I found *nothing* on the neck of the womb or vagina, which could explain the hemorrhage, and very seldom have I met a cervix presenting itself so healthy to the speculum, although offering to the finger a little retroversion. I was, however, so convinced of the exactitude of my diagnosis, that I declared to the patient that the illness was only existing higher than I thought, and it must have its seat inside the cavity, and very likely towards the posterior part of the womb, and giving, therefore, origin to the slight retroversion of the organ. I determined, therefore, to proceed to an internal examination of the cavity of the womb, and to make use in this circumstance of the endoscope, as I had several times proposed to my most honoured and respected friend Dr. Sims to do; a thing, which I am not aware, as yet, has been ever attempted or done by anybody else; and this is the reason that has determined me to bring to the notice of the profession the description and result of this case.

Everybody knows how Dr. Sims proceeds to the introduction of the sponge tent through the canal of the cervix of the womb, being only a modification of the practice of the first inventor of the system, Sir James Simpson. I followed the system of Dr. Sims, and only as I had no assistant (as it is very difficult to have one in the common practice) I have always experienced a little more difficulty than he does in the introduction of the sponge tent, being obliged either to do it without any speculum, or to use only one hand, and therefore give up the help of the tenaculum to keep firm the womb, at the same time that the sponge tent is introduced and forced in. However, with some patience this difficulty is soon mastered. I leave the sponge-tent always in for twenty-four hours, recommending to the lady to keep quiet at home, and possibly to lie down. I found once, that my patient took a long walk, and no inconvenience whatever followed, but I think with Dr. Sims, that it may perhaps prove dangerous to forget such a precaution and that we ought therefore to insist upon it.

The next day I proceeded to the removal of the sponge-tent. I had the lady lying on her left side, as it is usual in England in specular examinations or confinements, and I took the only precaution, that the lady should be as near and as much out as possible on the borders of the bed, as otherwise the lamp of Dr. Cruise's instrument might set fire to the curtains and at all events the endoscope be not so easily managed. Dr. Sims in his excellent work disapproves of the practice of removing the sponge-tent in the lateral situation of the lady, and after the examination he directs the woman to lie on her back, and then proceeds to the removal of the sponge and introduction of the finger for the digital exploration of the cavity. And certainly this system is the only practical one for the *digital* exploration, but I could not follow it, without again turning the woman a third time on her side, as the application of the endoscope is almost impossible if the lady lies on her back. The reason quoted by Dr. Sims against the removal of the sponge in the lateral position of the woman is, that the column of air precipitates itself inside the womb at once, and may, by its pressure, produce an irritation or an inflammation of the organ. I could never believe much in such an explanation; but knowing what a diligent observer he is, I always apprehend some mishap from following a plan, which he had occasionally seen dangerous. However, till now, I have not had, fortunately, any reason to confirm myself in those apprehensions.

The removal of the sponge, although made with the greatest precaution, produces always some bloody discharge, and as soon as the sponge tent was removed, I introduced with the greatest ease, inside the cavity of the womb a cylindrical tube No. 30 of the *filière* of Charrière, and of the length of twenty centimeters; and constructed in such a way as to be perfectly adapted to the usual endoscope. In fact, it differed only from the usual tubes of Desormeaux by its being shorter, and by having suppressed the lateral opening existings in the urethral tubes of Desormeaux. Having in such a way applied the endoscope I could see most clearly in the inside of the cavity of the womb, and inspect the condition of the internal membrane. A polypous vegetation was easily discovered at the bottom of the cavity and towards the posterior part of the *fundus uteri* in my case. It was of a vivid red colour, unequal like a sponge, and of the largeness of a small strawberry. It was striking the difference with the pale yellowish colour of the rest of the membrane. I withdrew the endoscope fixing the tube however, upon the vegetation, and I introduced the caustic through the tube itself, being therefore quite sure of the impossibility of touching anything but the vegetation itself, and then each time, I looked in again with the endoscope to certify the effect of the cauterisation before removing the tube. I was obliged to return six or seven times to the use of the caustic. I employed the nitrate of silver, the chromic acid, which I have experienced particularly useful, and I would have willingly tried the caustic of Filhos and Bonnafond, which I have so frequently and so advantageously employed on the neck of the womb, but I could not find any means of reaching with those caustics at twenty centimeters distance. The cauterisation performed, I always plugged the vagina with some cotton wool, to prevent the running of the caustic on the outside, as the nitrate of silver employed to the neck of the womb produces always a great pain to the outside parts without this precaution, and I have imbibed generally the cotton wool with a solution of chloride of sodium to decompose the nitrate of silver when I used this caustic.

I never saw the slightest inflammation of the body of the womb, or of the peritoneum through the employment of strong caustics or of the injections of a strong solution of iodine. In one case even my solid nitrate of silver broke, and a large piece was left inside the womb; but I had learnt already from the excellent work of Dr. Courty, how innocuous was this accident; and the patient felt no inconvenience of any kind from it. The reason of this innocuity evidently lies in the mouth and canal of the cervix being widely opened; and therefore the injected liquids or the secretions produced by the cauterisation running out freely; and my experience is in this point in accord with that of the best gynecologists, that the accidents produced by the injections even of simple water were due to the circumstance, that the fluid being not free to run out from the womb was either forced through the fallopian tubes in the peritoneum or even kept inside the womb, acting as a kind of foreign body upon it.

The case to which I make allusion, and whose treatment gave origin to this article, proved to be one of the most perfect success, and with no return of the illness; but this case is not the only one where I employed this system of exploration. I have applied it several other times with a negative, but not an unpropitious results. In one case of the most obstinate and frightful repeated hemorrhage, where I had destroyed several fungosities round the mouth of the womb, it served to prove that the lady was perfectly cured, and I could send her safely to some iron springs, where in a month or two she recovered the most brilliant health. In another case it authorised me to employ freely some perchloride of iron locally, and internally the ergot of rye. The hemorrhage, which existed for several months, ceased immediately, and it did not return but with the regular menstruation and in the regular quantity.

These facts authorise me to think that this system of exploration may occasionally prove very useful to the practitioner. What objection could be raised against this system? It is scarcely necessary for me to answer an objection made by a colleague, who boasted that he could always with his finger reach to the same conclusion without any visual examination. It is exactly the same objection that practitioners of the old school raised against the use of the speculum. All the discoveries made by the use of this instrument, and the complete change introduced in the science of gynecology through it, is the best answer to be given to such an objection. Besides, there is no practitioner who does not know how often it is extremely difficult, if not impossible, to perform a digital exploration of the cavity of the womb; at all events, the dilatation of the canal of the cervix for the digital exploration ought to be at least double of the one required for the introduction of my tube. But there is another, by far more important, consideration. Even supposing that the digital exploration should be equally conclusive, in what way can it help to the treatment? Instead of that in my system, the tube of the exploration offers at the same time the only possible means to bring remedies on the cavity of the womb without touching either the vagina, or the canal of the cervix, or the mouth of the womb, and therefore it introduces also a new system of cure as well as of exploration.—*Medical Press and Circular*, *July* 14, 1869, *p.* 26.

98.—ON THE VALUE OF NITRATE OF LEAD IN THE TREATMENT OF SORE NIPPLES.

By Dr. J. G. Wilson, Professor of Midwifery in the Andersonian University, Physician-Accoucheur to the Glasgow Maternity Hospital, &c.

[Every one who is much engaged in midwifery practice must frequently feel the vexation of being unable to cure sore and cracked nipples. However trivial an ailment it may seem, few are of more real importance, in consequence of both the suffering caused by it, and of its being a frequent cause of mastitis.]

It is not my intention in the present communication to enter upon, far less discuss the various circumstances which have been assigned as likely to cause or to favour the occurrence of sore or tender nipples. My object is briefly to call the attention of the profession to a simple and yet very effectual mode of treating cases of this kind, as I feel assured it is not so generally known as it deserves to be. I allude to the treatment of such cases by the local application of the nitrate of lead. From ample experience in the use of this substance—which has now extended over three years—I feel satisfied of its superiority to any other agent which I have hitherto employed. I have found it in numerous instances to succeed, when tannin, gallic acid, zinc, benzoin, borax, &c., failed to produce the desired effect. I do not mean, however, to assert that it will always succeed, or that it is an infallible cure, but in my experience the cases were few and rare in which I was disappointed with the result of its employment. The mode in which I use the nitrate of lead is in solution, dissolved in glycerine or brandy. The following is the formula I generally employ:

℞. Nitratis plumbi, gr. x.; glycerini, ℥i. Solve.

This is applied freely to the affected nipple after suckling. Care must be taken to wash the nipple previous to the next application of the infant. This astringent lotion generally produces a sharp smarting pain for a short time, but this soon subsides. In superficial abrasions or excoriations especially, I have found this application to have an excellent effect. In some cases of deeply fissured or ulcerated nipples, a stronger solution is occasionally required. In such instances, the lotion should be thoroughly applied, by means of a small hair pencil, to the whole of the fissured or ulcerated surface. The employment of the nitrate of lead may, if necessary, be combined with other modes of treatment. In severe cases, for example, the application of a teated shield. so as to protect the nipple while the treatment is being carried on, is sometimes advantageous. On several occasions, when treating cases of more than usual obstinacy, I have occasionally applied the nitrate of silver, collodion, or a solution of gutta percha, and found them useful adjuvants.—*Glasgow Medical Journal, May,* 1869, *p.* 321.

99—ON FIBROUS TUMOURS OF THE UTERUS.

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Fibrous tumours of the uterus have, by different authors, been also named "fibroids," "fibro-muscular tumours," hard fleshy tubercle of the uterus; muscular tumours (Dr. Wilks); and it will be well at the outset that I define exactly what I mean by a growth of this kind.

By a fibrous tumour of the uterus I understand "a growth" which is developed in some portion of the muscular wall of the uterus; "in consistence" it is dense and hard; "in size" it varies from a small hazel-nut to that of the pregnant uterus at term, or even larger; "its shape" is dependent mainly on its position in the uterine wall in which it is developed; it is invariably, at its circumference, surrounded by a layer of cellular tissue less dense than itself, and which, in the majority of instances, is easily detached from the denser portion which is beneath it. With this definition before you, let us for a few minutes consider the pathology of these growths. These fibrous tumours are developed in the wall of the womb itself; they are composed of the same tissue as that wall, that is to say, they are made up of fibres of cellular and some fibrous tissue—in fact, a fibrous body of the uterus is generally an excessive development of that portion of the muscular wall of the organ in which it is found. Hence has arisen the suggestion that these growths should be named "muscular tumours of the uterus," although, for my own part, I shall always prefer the term "fibrous," seeing that in the majority of instances in which I have examined these growths in the cadaver I have found them to consist of a tissue more resembling fibrous than true muscular substance. Generally the growth is diffused in texture, and presents to the eye an irregular "mammilated" surface. As a rule, I believe, you will find that these tumours are developed singly within the uterus, although the instances are not very rare in which I have seen several springing from the walls of the same organ; and one obstetrician has recorded a case in which as many as sixteen fibrous bodies were found after death protruding into the cavity of the uterus, and some of these were of considerable size. The nutrition of these growths appears to have a close relation to their density, for the harder masses are bloodless, and their injection is impossible; while in the softer varieties vessels of considerable size that are capable of injection are found penetrating the growth itself, as well as supplying branches to the layers of fibrous material which connect the lobules of the growth. And now, concerning the position in which these fibrous tumours are developed, I am able to put you in possession of some interesting and important facts. Although it is perfectly true that you may find them in any part of the tissue of the uterine wall, yet, practically, we find that some portion of the uterus is but little obnoxious to their formation; for instance, all authors are agreed that the development of one of these growths in the cervix uteri is a circumstance of great rarity, and my own experience most fully coincides with this statement—in fact, I have never seen a case in which that portion of the uterus can be said to have been the starting point of a fibrous body. Again, we find that in the majority of cases these growths occupy the superior position, and fundus of the uterus. Somewhat rarely they are found in the anterior wall, and my own observation has led me to the opinion that by far the larger number of cases in which these tumours appear singly, they will be found to occupy the posterior wall of the organ near the fundus, and at the bedside, this question of position is of very great importance, as we shall presently see. Obstetricians have generally agreed to deduce from the accidental position in which fibrous tumours are found a classification of these growths, which conveys to our minds at once a correct idea, not only of the position of the uterine wall in which the neoplasm is situated; but also to a considerable degree, the impression to what extent such a growth is amenable to any form of treatment. Let me then describe to you the various positions in the uterine wall, from which these fibroids take their origin, and they are three in number—1st. The sub-peritoneal; 2nd. The interstitial; and 3rd. The sub-mucous. I will briefly describe these three varieties, and 1st, of the "sub-peritoneal fibroids." In this form of growth or growths, we find one or more tumours generally of a round or ovoid shape, which spring out of that of the uterine substance that is immediately beneath the peritoneal covering of the organ, and they possess a base of considerable breadth. As their name implies they are always invested by the peritoneal covering of the uterus, which in the course of their development is carried forward with the growth, so that after a lapse of time, in conjunction with the base already mentioned a pedicle is formed, which in each instance varies in length, and at times is so long as to allow the tumour to hang more or less freely in the cavity of the abdomen or the pelvis, as the case may be. As a rule, these sub-peritoneal growths are remarkable for their intense hardness and their low vitality, they are seldom the cause of death in women who become the subjects of them. Finally, in connection with the first variety, I may mention that the pedicle of these growths becomes sometimes more and more fragile, until at length by accident being broken, the growth is found completely at liberty in the abdominal cavity, and can be moved hither and thither, at pleasure; such an example of this rare condition some of you have recently had an opportunity of witnessing among the out-patients, in a case which was sent to me by Dr. Alexander Fox, who sought my opinion concerning the patient. These growths generally attain a large size, and I have often seen them when they have weighed some pounds. The second variety, as its name implies, the "interstitial fibroid," is a growth contained wholly within the uterine wall, neither encroaching on the uterine cavity on the one hand, nor protruding externally on the other; as a rule, these growths do not attain to the large size which we find in the sub-peritoneal form just considered; there exists with these tumours a distinct boundary formed by cellular tissue of a loose character, with which the growth is so lightly connected, that it may, without much difficulty, be detached and turned out of its investing capsule when the uterine wall which covers it is incised, and their vascular relations to the uterus are not intimate. Now you will readily understand that very early in their progress growths of this sort interfere with the normal shape of the cavity of the womb, and if the tumour should attain to a considerable size, the whole organ rises out of the pelvis. Dr. Graily Hewitt has drawn attention to an interesting fact that now and then these interstitial growths are so shaped that their escape from the pelvic cavity is prevented; and then the functions of neighbouring organs are interfered with, and alarming symptoms present themselves. I can myself fully verify the truth of this observation of Dr. Hewitt's, for I have, on more than one occasion, seen an instance in which an interstitial fibroid developed in the posterior wall of the uterus of very moderate size; but prevented from its irregular form from rising out of the pelvis has produced by its pressure on the rectum such insuperable constipation, that the patient has succumbed to the symptoms which, as you know, are attendant on the complete obstruction of the large intestine at its lower portion. The third variety which is again named from the position in which it is developed, is termed the "submucous fibroid; in every respect it resembles the form I have just described to you; but, growing in the uterine wall immediately beneath the uterine cavity, it projects into that space and in exact proportion to its size it distends and enlarges the area of the cavity itself, as you will readily understand. Occasionally, beneath the mucous membrane covering the growths is found a thin layer of uterine tissue in a normal state. It is impossible for these sub-mucous growths to enlarge without a corresponding lengthening of the uterine cavity, and that portion of the tumour which impinges into the cavity usually being of a crescentic form, presses upon the opposite wall of the uterus, stretching and expanding it. The position of these sub-mucous growths is various; like the interstitial fibroids, they are "encapsuled," and should the progress of their development be sufficiently rapid they become pedunculated, when they form the growth called fibrous polypi, of which we shall have more to say hereafter; and now I will finish all I have to say to you upon the pathology of fibroids, by making one or two remarks upon the alterations which take place in the uterus, in any portion of the walls of which a growth of this character is located. As soon as a fibrous body which has been developed in the uterus acquires a certain size, for example, the size of a walnut; the parenchyma of the uterus, as also the mucous membrane, which lines the cavity undergo positive changes, which, with a little practice, you will readily recognise; although I must tell you that in the cases of sub-peritoneal growths these changes are not so well marked, nor so frequently observed: in fact, I have seen these growths of large size attached to the fundus of a womb which has become shrunken and atrophied; when, however, the growth is of the second variety, true hypertrophy of the whole of the muscular wall of the uterus results, the blood-vessels are actually enlarged, and the mucous membrane becomes congested and tumefied. As in pregnancy, so with these tumours, for after they have increased beyond a certain size they project, not only into the cavity, but also into the neck of the womb, and in the course of their development the inferior segment of the body and then the cervix is encroached upon, so that the neck gets shorter and shorter and thinner until the os uteri often presents an appearance similar to that observed when about to open at the commencement of labour. With these changes, of course the cavity of the womb, as a whole is lengthened. You have seen, I am sure, instances in which we have been able with ease to pass the larger portion of the uterine sound into the uterus. And of this lengthening I shall have more to say when speaking of the diagnosis of fibroids. Again, before I recall to your minds how often I have pointed out the fact, that a growth situated in the wall of the womb soon by its weight induces a displacement of the organ, and as a rule, the version resulting inclines to that part of the pelvic cavity which corresponds to the seat of the tumour; thus, a fibroid of *moderate* size in the posterior wall causes a retroversion, and this condition remains until the pelvic wall opposes a barrier to the increase of the fibroid, in which case the development continuing, the growth is supported by the pelvic wall, and then the fundus uteri is pressed against the anterior boundary of the pelvis, so that you will not be astonished to find in those instances in which a retroversion has been observed early in a case, that this condition has been changed to one of anteversion some considerable time subsequently. Again, assuming the fibroid still progresses in size, the pelvis at length becomes too small to contain it, then it ascends, and slowly takes its position in the abdominal cavity; of course, dragging the uterus with it, and hence, when fibrous growths have attained to a large size, we have difficulty in reaching the os tincæ when making a vaginal exploration. Not only are these changes of the uterus itself observed, but alterations in the position of the bladder and rectum ensue. The former viscus unable to dilate becomes first irritated, and this in turn goes on to a true catarrh; the rectum also from prolonged pressure in like manner becomes congested, and constantly we are called upon to treat one of the most painful complications of fibrous tumours, hemorrhoids. These vesical and rectal troubles are often the cause of more pain and suffering than the neoplasm upon the presence of which they depend.

Lastly, do not forget when giving an opinion upon a case of fibroid disease, that now and then these neoplasms undergo certain changes which ultimately result in their destruction, or rather I should say, their degeneration, and in this way, the patient becomes cured of her malady. That fibroids are ever absorbed, I do not for one moment believe, but we have, in the post-mortem room, seen instances in which that kind of ossification known by the term calcareous degeneration, has taken place. True inflammation of a fibrous body I have never witnessed, although I have often seen active inflammation of the peritoneum covering a fibroid of large size in the wall of the uterus.

This form of tumour is developed immediately beneath the mucous membrane lining the cavity of the uterus; they project into that cavity; and, as their name implies, their covering is simply an extension of the lining membrane of the organ. Now I remind you of these points because you will presently see that they are surgically of great practical importance. I am able to assure you that the form of disease, the treatment of which we are now entering upon, is capable of the most decided, and, with ordinary care, the most effectually radical treatment. At starting, however, I find myself called upon to speak of some operative procedures that have in this and other countries been adopted only to enlist from you their complete condemnation. In the year 1840, M. Velpeau, and, a little time afterwards, M. Amussat, suggested that these hard sub-mucous tumours of the womb should be removed by an operation, which is termed enucleation; their example has been followed by several operators in this country. It consists first of an opening being made into and through the os uteri internum, sometimes by incision, at other times (as in the case related by Sir James Simpson) by the potassa fusa, or, as in Dr. C. West's case, by the removal of one or other uterine lip; the hand is then partially or wholly introduced into the cavity of the womb, and the tumour is "shelled out" from its uterine envelope. You will, even from this brief description, readily understand, I feel sure, that the operation is one attended with great danger, that it is long in its performance, and the statistics of all the operations for the removal of these growths by enucleation go to prove that the chances of the patient who undergoes the operation escaping destruction, either immediately by shock, or a few days later by uterine inflammation, or later still by pyæmia, are very small indeed. Twice I have operated in this way in cases that appeared peculiarly favourable for its performance. The first case occurred to me in 1859, in the person of a widow, aged 36, who had for years been suffering from the hemorrhage and other symptoms caused by the presence of a sub-mucous fibroid, the size of an orange, in the posterior wall of the uterus. This woman was exceedingly anxious, before a second time entering into the married state, to be rid of her tumour. From the moment I began to introduce three fingers into the os uteri, previously dilated by sponge tents, until I brought out two-thirds of the growth, one hour and sixteen minutes elapsed. The patient died to all appearances, of pure shock, two hours and ten minutes after being removed to bed. I operated on the second case in February 1861. The patient was 40 years of age; the growth was much larger than in the former case. I had previously opened up the cervix to a large extent, and I succeeded in getting away, partly by shelling, partly by the scissors, more than a third of this large tumour. I was compelled somewhat abruptly to finish the operation, in consequence of the gentleman who was administering chloroform assuring me that the patient was getting exhausted. Being placed in bed, she rallied under the free use brandy and other diffusible stimulants; but she died four days subsequently, with all the symptoms of active uterine and pelvic inflammation. The impression made upon my mind by the disastrous termination of the two cases quoted above, together with the results of the recorded cases of others, have induced me to refrain from ever again attempting this (to my mind) dangerous and hazardous proceeding. Should you wish to become more intimately acquainted with the steps of the operation, I can refer you to the works of Sir J. Simpson, "Obstetric Memoirs," vol. i, p. 118; Dr. West, "Diseases of Women," 3rd edition, p. 305; and to a very able article on the "Surgical Treatment of Fibrous Tumours of the Uterus," by my colleague, Mr. Jonathan

Hutchinson, in the fourth vol. of Holmes' System of Surgery. I can only for myself say that I know of no circumstance that should induce me again to attempt to perform this, almost certainly, fatal operation, and the more so, seeing that I shall immediately have to describe to you a surgical proceeding very far less dangerous in its performance, and in my own experience infinitely more satisfactory to the physician, and beneficial to patient in its results.

Dismissing, then, this operation of enucleation, we come to the symptoms of sub-mucous growths, and, following the plan adopted in our second lecture, we must speak first of the treatment of hemorrhage, for you will find that symptom, as a rule, to be the earliest, and very often for a long time, constitutes the only, indication afforded us of the presence of a tumour of this kind. At first it appears in the form of a prolonged and profuse menstrual period, the discharge being mixed with clots of greater or less size, the bleeding in each case being ushered in with severe cramp-like pains. After the lapse of time, which varies, as I have before pointed out to you, according to the age of the patient, the size, position, and character of the growth, hemorrhage between the periods appears. Now, whatever may be the cause of this dangerous symptom later on in the progress of these cases, the impression on my mind is very clear and distinct that in the earlier stages of the development of these submucous growths the hemorrhage is caused in this way. As soon as the growth has attained the size of a pigeon's egg, the parenchyma of the uterus, as well as the lining membrane, undergo extensive changes, the blood vessels enlarge, first within the uterine wall, subsequently those of the mucous membrane, which soon becomes tumefied and hyperæmic, in fact a true congestion of the uterus results. Now, add to this the displacement, more or less complete, which we so constantly find resulting from the presence of these tumours, and you have, to my mind, a satisfactory explanation of this early hemorrhage; and if you will examine carefully for yourselves, you will soon, I believe, be satisfied that the cause is the one I have just stated.

[In the following remarks Dr. Palfrey describes the operation for the removal of sub-mucous fibroids which he has been in the habit of performing for several years. He does not at the time of operating make any endeavour to remove any portion of the growth itself.]

Having satisfied myself that the tumour I am treating is of the submucous variety, and having carefully examined the patient with a view of ascertaining the condition of her other organs, and particularly her kidney, having carefully for a week or two previously regulated the condition of her bowels, I usually, some three or four days before the commencement of the ensuing menstrual period, have the os uteri leeched. During the whole of that period I advise the patient to remain quietly in bed; and as the decline of the menstruation is indicated, I again have some four or six leeches applied to the cervical portion of the uterus, this time followed by a warm bath. On the morning of the third day from the entire cessation of all bleeding, I administer a gentle purge; and having thus reduced to a minimum the congestion of the uterus, I proceed, on the morn- of the fourth day, to operate. (I say on *the morning* of the fourth day, because I have found, in performing any operations upon the sexual organs, that by operating early in the day the patient not only recovers from any sickness or other inconvenience that may follow the administration of chloroform, but also regains before night that mental quiet which every woman loses when aware she has to undergo any surgical proceeding, no matter how simple; so that, as a rule, their night's sleep is not at all interfered with.) Early, then, having had the patient placed upon a firm table—none better than an ordinary narrow dressing table so common to our bed-rooms—and being thoroughly under the influence of chloroform, I have her brought well to the edge of the table, and in the lithotomy position, an assistant taking charge of a knee on either side, which must, during the whole time, be kept well flexed upon the abdomen. I next introduce a Sims' speculum, one of large size, fixed upon a straight handle, which gives greater power in depressing the perineum than the ordinary double-bladed duck-bill speculum. Having brought the os uteri well into view, I give the speculum into the charge of a nurse, who is instructed to kneel at the left of the operator, being prepared with some six or eight small fine sponges attached to long slender handles of cane; with a pair of fine slightly curved vulsellum forceps I then grasp the anterior lip of the uterus, giving the handles of the vulsellum into the charge of one of the gentlemen commanding the knees. Next I introduce *into* and *through* the os uteri internum Sir James Simpson's single-bladed hysterotome, having previously adapted the blade to the identical depth I wish to cut on either side; with this instrument I make a bold and free incision, first into one side of the cervix, then into the other. And here please to remark that this portion of the proceeding differs very considerably from the operation we perform for the relief of those cases of dysmenorrhœa depending upon a narrowing or other mechanical obstruction in the cervical canal; in those cases we cut *up to*, but *not into*, the os uteri internum. Completing the incisions of the cervix, we pause for a moment, for it is at this stage, if at all, we get some free bleeding; and should this happen, do not be at all alarmed; sponge the cervix well out with small sponges dipped in iced water, and in a very few moments the bleeding, as a rule will cease. Certainly, in my own hands it has but on one occasion given us the slightest anxiety, and that case we ought never to have operated, for we subsequently discovered that the patient was the subject of old Bright's disease; and this case is the only fatal one that has occurred to me in 119 operations. The next step is to cut into the growth itself, still preserving the steadiness of the uterus with the forceps in the anterior lip. I next pass into the uterus a very long probe-pointed knife, or rather saw, for it is more like a miniature saw than anything else I can name; this instrument I introduce sideways, guided as far as possible by my finger, wholly into the uterus; then according to the position of the growth either in the anterior or posterior wall, I turn its serrated edge towards the surface of the tumour, and with a slow, yet firm and decided movement, I cut my way into the growth, and, assuming for the sake of description the growth is in the posterior wall, I introduce the index-finger of my left hand into the rectum, and supporting the enlarged uterus in this way I cut slowly and deeply until the depth of the knife in the growth, and its distance from the surface of my finger in the rectum, lead me to believe that I have made an opening through the greater part of the diameter of the tumour; then turning this saw-like knife with its edge to the right, I made a lateral cut in that direction, and subsequently doing the same into the left portion of the growth. This part of the operation I have never seen attended or followed by any notable bleeding. This finished, it only remains to introduce into the vertical jagged incision in the tumour one or more long narrow strips of lint, well wrung out in olive oil. This step in the operation requires some management, and at first will give you some little trouble. Do not rest, however, until you have firmly and securely plugged the whole of the incision and also the cervix; follow this by plugging the whole vagina with the plug of balls of cotton wool, tied at small distances to a length of whip-cord. This form of plug possesses the great advantage of being instantly removed at pleasure, and, in addition, we avoid the pain and discomfort which attends the use of separate strips of lint or other material, which, if closely packed, as they ought to be, into the vagina, cause some trouble and considerable pain in their removal. now let me ask you most carefully to practice this plugging; it is, I assure you, a very important part of the proceeding, and the part the careful performance of which effectually protects you from the anxiety, and the patient from the peril of any subsequent hemorrhage. Very much of late years has been written of the dangers of this operation, and on more than one occasion I have been present at our societies when earnest debates have taken place concerning the fatal cases that have, in the hands of operators of the most undoubted skill, now and then occurred. I tell you, fearlessly, that if you will adopt the precautions I have mentioned, you need have but little fears, indeed, of hemorrhage in these cases. Keep your patient well chloroformed until this plugging is over, for it is the most painful portion of the whole operation. To proceed, then. Having securely plugged up to the vulva with this continuous plug of cotton wool soaked and wrung out in oil, a thick pad of folded lint upon the external organs, secured by a tightly applied T bandage, completes the operation. The patient is now removed to bed, and I usually at this time administer a third or half a grain of morphia by the hypodermic syringe. Should any sickness follow, I avoid giving anything for a few hours by the mouth, save now and then, a tablespoonful of iced milk, or a little lemon-water ice, which is usually kept down and much liked by the patient. As soon as all fear of vomiting is over, some slight nourishment may be given, followed, if necessary, by a little champagne or other light wine. As a rule, the pain following this operation is not sufficient to demand the regular administration of opium or any other sedative, and I have long discontinued its use in these cases unless called for by special circumstances. Towards evening or earlier, should the patient complain of distension, the bladder must be emptied by the catheter; and this method of relief must be continued until the whole of the vaginal and cervical plug has been removed. Should no untoward circumstance contraindicate this course, the *vaginal* portion of the plug may be removed twenty-seven or thirty hours after the operation, and the vagina should then be very gently washed out with a tepid douche. At the expiration of forty-eight hours I remove the cervical and uterine strips of lint, and then, having again washed out the vagina and lower segment of the uterus, I replug the cervix and as much of the uterus as possible, in the same manner as at first, removing the lint and replacing it every morning. This process is attended with a considerable discharge of an offensive odour. Do not be alarmed at this; it proceeds, I believe, from the softening and breaking down which is going on in the interior of the growth, through the capsule and into the centre of which you have made an opening. Continuing your treatment in this way, you will soon notice a sensible diminution in the size of the whole organ, more especially, however, in that portion of the uterus in which the growth was developed, the organ will become less fixed and more movable. I continue to use the cervical plug until four days before the next menstrual period comes round, and then I allow the uterus a few days of perfect quiet. I cease in every way to interfere either with the tumour or the uterus, and upon the appearance of menstruation your patient herself will become sensible of a marked improvement in her condition : the severe pain which has ushered in the bleeding will appear no more ; the bleeding itself will be far less in quantity, and its continuance will be limited to three or four days ; the bearing-down will gradually disappear—in fact, her troubles will grow less month by month. Careful examination from time to time will convince you that the growth is gradually becoming smaller. Some months will elapse before the tumour will become so small as to cease to be of the slightest importance or cause of danger ; but, I assure you, with care this result will be accomplished. I do not tell you that all evidences of the presence of the growth will be lost ; such a case has never happened to me, but with the exception of the one fatal case I have mentioned, I have in *no* instance failed in bringing about an arrest in the hemorrhage, and a positive and well-marked decrease in the tumour itself. To go back for one moment in our details. I will observe that it is not necessary to keep the patient on a milk or slop diet long after the operation ; usually on the day following I suggest some white fish, chicken, or sweetbread ; and by the fifth or sixth day you may safely allow her to resume her ordinary mode of living, nor will aperients be necessary. I always allow the bowels to act themselves. I am sure I have seen serious irritation produced by the premature administration of purgatives after obstetric operations. I advise you to keep the patient very quiet until the menstruation that follows the operation is well over ; not that it is wise to confine her to the bed during the whole of that time. My own plan is to remove her to a couch on the third or fourth day, and keep her there during the day until the appearance of the bleeding, when I advise her to remain in bed until it has wholly ceased. Now, you may inquire, and with much propriety, whether the performance of this operation in the manner I have endeavoured to describe to you is attended with equally successful results when the growth is situated in either wall of the uterus ? I reply, Certainly not. I can hardly tell you why ; but I am convinced that when the growth is found in the anterior wall, the benefit to the patient is less decided and less rapid in its appearance than when the posterior wall is the seat of the disease ; not that the arrest in the bleeding is less certain, but I believe the tumour more slowly and less surely undergoes destructive changes when situated in the anterior than in the posterior wall. Possibly this may arise from the circumstance, that when cutting into the growth we do so less deeply and with much more caution, knowing that the bladder intervenes between, our hand supporting the uterus externally, and our knife in the cavity of the organ ;

which anxiety is absent when cutting into the posterior wall, for in that case we can very accurately measure the distance between the point of our finger in the rectum and the knife in the uterus. I would not have you imagine that I have operated upon these 119 cases without meeting with some difficulties, and not a few anxieties : on three occasions I have had to treat and guide the patients through an attack of pelvic cellulitis ; in two other instances pelvic abscess has followed the operation ; in both cases, however, this accident has followed premature exertion undertaken by the patients. But, notwithstanding the chance of such untoward symptoms and accidents occurring, I am firmly convinced that the results of this procedure are highly satisfactory to the operator, and truly beneficial to the patient. It is no part of my intention, in delivering these Lectures on Fibrous Tumours to you, to occupy your time with the narration of a series of cases to prove the value of the treatment I have just sketched out to you ; but I feel confident you will gain some confidence in the operation itself if I briefly put before you the particulars of one or two typical examples ; and I will begin with an instance of fibrous tumour in the anterior wall.

On the morning of the 19th August, 1864, Madame K. brought to my house a note of introduction from my friend Mr. Wm. Allingham, of Finsbury-square. I abstract from my notes the following brief history, taken at the time :—"Madame K., aged twenty-eight, married eight years, no children, no miscarriages, was perfectly well until about a year before marriage, when her period commenced to be more profuse than before. This trouble has gradually increased upon her ever since her marriage, and, notwithstanding that she has had the best of advice in Switzerland, in which country she has resided, and also in Paris on various occasions, she is now in a state of complete exhaustion and profound anæmia from loss of blood ; has had four separate attacks of hemorrhage in the last seven weeks ; her bladder also is extremely irritable, she being compelled to pass her water every twenty minutes, and this trouble keeps her from sleeping at night. A watery discharge always follows the bleeding ; she has continual bearing down, but little pain in defæcation." I had no difficulty in recognising a hard submucous fibroid, the size of an orange, springing from the anterior wall of the uterus, which was anteverted and pressing heavily upon her bladder. I pointed out to this lady that I could hold out to her no hope of relief whatever from drugs, and then explained to her the nature of the operation I proposed to perform for her relief. She immediately consented, and a few days after her visit to my house I saw her with Mr. Wm. Allingham, who fully agreed with me as to the nature of her malady, and coincided with me in the advice I had offered. Madame K. having been kept from this time perfectly quiet and constantly nourished, we proceeded on the 24th of September, 1864, four days after the cessation of a bleeding, to operate upon her. Chloroform having been administered by Mr. Wm. Allingham, and assisted by two other gentlemen, I operated exactly in the manner I have described above. I will not tire you by detailing the after treatment, suffice it for me to tell you that the bleeding at once ceased. This lady in a few months wholly recovered her health, and I believe has remained well up to this time. She favoured me with a visit in the summer of 1868, when visiting England; she then assured me she was quite well, and capable of undergoing very considerable fatigue; that she menstruated regularly, her period never lasting more than four days.

Let us next take a case in which the growth was situated in the posterior wall. On the morning of the 12th December, 1867, Mr. Talbot King, of Hackney, brought to my house, for my opinion, a lady, Mrs. C., aged 43, a woman of full habit, married twelve years, never pregnant, commenced to menstruate at 12 years of age; always regular until six years ago, when her period became profuse in quantity, and preceded with severe pain. These symptoms, with the other indications of fibroid disease, have gradually increased, the bleeding during the past year being so serious on more than one occasion as to imperil her life, and keeping her in her room for months together. A long time elapsed before she would allow Mr. King to ascertain the nature of her malady; when he examined her, however, he had no difficulty in detecting a fibrous body of considerable size springing from the posterior wall, considerably dilating and enlarging the cavity, and expanding the neck. The condition of affairs becoming so alarming, the constant bleeding demanding the equally constant use of the vaginal plug, Mr. King persuaded her to see me. I fully corroborated his opinion, and plainly pointed out to Mrs. C. that her only hope of relief lay in an operation. She consented, and on the 27th December I operated. Mr. King in the most kind manner carried out my plan of after treatment, and her progress to health was so steady and satisfactory that I had occasion to see her but once after the operation. He writes to me concerning her, in answer to my inquiries, on the 22nd March as follows:—"The operation was most successful; Mrs. C. has had no return of the flooding whatever; she is now in excellent health, and can walk comfortably a long distance."

Now and then pregnancy follows the disintegration and diminution of these sub-mucous growths. Some sixteen such cases have occurred to me; the following is a fair example:—Miss J. aged 26, a tall girl, exceedingly exsanguine in appearance was, brought to my house on the morning of Feb. 26, 1867. I learned that she had been in bad health for several years, her great complaints being intense pain in the uterine region and loins for many hours before each menstruation, and an enormous loss of blood on each occasion; the relative who came to me with this lady described the dysmenorrhœa as being "fearful" for hours. This girl had latterly been on repeated occasions delirious with the severity of the suffering, which was aggravated by vomiting and headache. The continuance of these troubles had been followed by epigastric pain after each meal, which had induced this young girl to abstain as much as possible from eating solids. Her bowels were constipated, seldom acting more than once in ten or twelve days, and then with great pain and distress, which arose from a mass of highly irritable hemorrhoids which protruded at each evacuation of the bowel. I was further informed that Miss J. had been under the care of a considerable number of physicians during a period extending over five years. She readily acquiesced in the request I made to examine her uterus, and I found the whole organ very much enlarged, *completely* retroflexed, the body of the organ, acutely bent upon the cervix, lying in the hollow of the sacrum, was exceedingly tender and painful when pressed, and the slightest attempt at moving it was attended with great pain, the cervix was looking towards the pubic arch, which was gaping and œdematous, and also highly sensitive. After very considerable difficulty I was enabled to pass a fine silver uterine probe 4½ inches into the cavity, and then introducing my finger into the rectum, which was perfectly flattened by the enlarged uterus, I found a growth springing from the posterior wall, bulging into and distending the cavity; the anterior wall of the womb, which was thin, was, by a little drawing down, easily moved over the growth and the probe. I suggested that I should see this lady with her own medical man, and a few days after her visit to my house I visited Miss J. at Peckham Rye, with Mr. Shillingford, who, having then examined her, coincided with me as to the nature of this case. Both the patient and her friend immediately consented to the proposal I made to operate upon this case. I having previously explained to them that in my judgment drugs were wholly helpless to serve her, Mr. Shillingford very kindly undertook the preliminary treatment; and on the morning of the 20th of March, four days after the cessation of a bleeding, assisted by Mr. Shillingford, and Messrs. G. McKenzie and Edward Flint, of the London Hospital, I proceeded first to cut freely into the cervix, and afterwards into the growth. I saw her repeatedly with Mr. Shillingford. She progressed both steadily and satisfactorily; the following period *commencing* in the night during the patient's sleep, and without her knowledge, it lasted four and a half days, and was moderate in quantity. I heard from time to time of this lady's progress, and some seven or eight months after the operation Mr. W., a member of my own profession, called upon me to ascertain my opinion as to the advisability or otherwise of Miss J. being married. I could see no objection to the step being taken, for I had but a short time before examined her and found her uterus in excellent position, 2¾ inches long, and her general health all we could desire. Shortly after this she was married, and this step was followed by an increase in the quantity of blood discharged at each menstrual period, but without any accompanying pain. Several months later Mrs. W. called upon me to say she had missed five periods, and she had every reason to believe that she had quickened. I requested her at once to go home and remain in bed during the remaining portion of her pregnancy. I saw her at her residence, at Hackney, a few days after this in consultation with a Mr. N. Kennett. The fœtal heart at this time was distinctly audible. We did not, for a reason presently to be mentioned, examine her internally. I saw her again with Mr. Kennett some weeks later, and promised, should any assistance be required, to be present with him during her labour. On the morning of the 23rd of March, 1869, at half-past eight, Mr. W. called at my house to tell me that his wife was in labour, and requested me to go and see her. I had but half an hour previously left London to attend a consultation at Dover, and upon my return from that place, the same afternoon at five o'clock, I learned from Mr. Kennett that he had delivered her safely some three hours before my arrival of a well-grown healthy child. We saw Mrs. W. together; she was then in excellent condition, and I heard subsequently that she made an unusually rapid recovery. It was but a few days since when passing her house I saw her nursing a very healthy looking child at her window. Now I have related to you this case in detail because to me it has proved in all its aspects one of the greatest possible interest and encouragement, and I feel sure it will be equally interesting to every one of you. You will observe that I said that I refrained during her pregnancy from examining this patient *per vaginam*. My reason for not doing so was simply this: While I held the post of Physician to the Metropolitan Free Hospital, we operated upon an exactly similar case. Ten months after being dismissed cured the patient presented herself, being then nearly six months advanced in her first pregnancy, although some sixteen years married. Our then resident medical officer there being with me at the time was anxious, like myself, to ascertain the condition of the cervix, we both examined the woman; this was followed the same night by labour pains, and twenty hours subsequently she was delivered by our house surgeon of a boy. This woman has been occasionally under my care at this hospital since that time, but she has never again conceived. I have always entertained a strong impression that we interfered with her cervix sufficiently to induce contraction, which, extending to the uterus itself, resulted in the premature expulsion of its contents.—*Medical Press and Circular, April* 14, *June* 23, *and July* 14, 1869, *pp.* 306, 515, 23.

100.—IMPROVED PESSARY FOR FLEXIONS OF THE UTERUS.

By JOHN CLAY, Esq., Professor of Midwifery, Queen's College, Birmingham.

In the treatment of flexions of the uterus I have employed almost every known variety of pessary, both intra-uterine and vaginal, and after a short trial I have found them either inconvenient or inefficient, and have had to discontinue using them. After many experiments I succeeded in devising a pessary which in practice has proved to be very efficient in treating these uterine affections. The pessary is of easy application, and affords great comfort to the patient, relieving her of many of the distressing symptoms which often accompany displacements of the uterus, although from the short time that the pessary has been in use I am unable to state its value in effecting a cure.

The pessary is made of india-rubber. It is, in fact, a small, almost inelastic ball, secured to an ordinary elastic pessary, and is so attached that its axis forms an obtuse angle with that of the larger part of the pessary. It is equally suitable for retroflexions and anteflexions. For an anteflexion of the uterus it is introduced in the following manner :—The instrument is dipped in tepid water, and its upper surface then smeared with a solution of gum arabic, to facilitate its introduction. I have used a solution of gum arabic for this purpose for some time, and find it to be a very good substitute for oleaginous and fatty matters, which dissolve the india-rubber and destroy the integrity of the instrument. The pessary is now rolled up on its long axis, and passed under the pubes, along the anterior wall of the vagina, until the upper part is passed beyond the os uteri. The pessary is then inflated, which forces the small portion of the pessary into its place—that is, between the uterus and bladder, restoring the uterus to its normal position. When the pessary is sufficiently filled with air the tube is made secure, and suspended to a band round the waist, or placed in some other convenient position. The pessary must be introduced with the small ball looking towards the uterus, for if it is passed in the opposite direction the upper extremity would press on the bladder, and the lower portion would exert undue pressure on the uterus.

The inflation of the pessary may be effected either by the mouth or by means of Higgison's syringe, the two being connected by means of a small piece of india-rubber tubing.

For retroflexions of the uterus, it is only necessary to pass the pessary along the posterior wall of the vagina—reversing, in short, the introduction of the pessary to what obtains in cases of anteflexion.

The pessary was constructed, under my directions, by Messrs. Salt and Son, Bull-street, Birmingham.—*Lancet, Sept.* 25, 1869, *p.* 434.

101.—NOTE ON THE USE OF CARBOLIC ACID IN OBSTETRIC PRACTICE.

By Dr. J. G. Wilson, Professor of Midwifery in the Andersonian University, Physician-Accoucheur to the Glasgow Maternity Hospital, &c.

It is now upwards of a year since I first employed diluted carbolic acid as an intra-uterine injection after parturition. The first case in which I tried this antiseptic injection was one where the symptoms were such as to lead me to apprehend an attack of puerperal septicæmia. In the case referred to the patient, on the third day after delivery, suffered from considerable tympanitic distension of the abdomen, with pain and tenderness on pressure over the hypogastric region, the lochial discharge was scanty and fœtid, and there was a good deal of general febrile disturbance of the system. The result in this instance was so satisfactory that I was induced to give this plan of treatment a further trial in such and similar cases. Since then I have frequently syringed the uterine cavity with a weak solution of carbolic acid, not only in cases where the lochial discharge was offensive and deficient, but in a variety of other cases. Such, for example, as those anxious and troublesome cases in which there is reason to suspect retention, *in utero*, of a portion of the placenta or membranes, consequent upon or resulting from abortion, retained or adherent placenta, &c.; also in cases where the infant is born in a semi-putrid state, morbid conditions of the placenta, decomposing coagula in the utero-vaginal canal, &c., &c. That carbolic acid has proved of decided value in many such cases I have not the slightest doubt. Still, I am not prepared to ascribe all the benefit to the carbolic acid as an antiseptic; I think that the very washing out the uterine cavity is of itself a very important matter, and is entitled to some consideration in estimating the value of this mode of practice. I may mention that this plan of treatment has been tried in the Glasgow Maternity Hospital, and, generally speaking, with good results.

I may also state that previous to using the carbolic acid I employed the permanganate of potash, both in private and hospital cases.—*Glasgow Medical Journal, May*, 1869, *p.* 322.

102.—ON A CASE OF OVARIOTOMY.

By Dr. ALFRED WILTSHIRE, Medical Inspector H.M. Privy Council; late Senior Physician to the Islington Dispensary; and Dr. WILLIAM TYNDALE WATSON, Dublin.

[In the following case there was acute peritonitis at the time of operation. The patient was 49 years of age and had had nine children. She first noticed some abdominal enlargement in March 1867, and this enlargement gradually increased until seen by Dr. Watson. She at that time was suffering from incessant vomiting, tenderness of the abdomen, quick and hard pulse, hurried respiration, and hot skin. Dr. Wiltshire was called in on the evening of the 3rd of May.]

Dr. Wiltshire's notes are as follows. May 3rd, 1868. I was called down to Tottenham to see Mrs. S., aged 49, in consultation with Dr. Watson. I found the patient lying in bed with her knees drawn up; countenance haggard and anxious; skin cold; pulse 105 and very feeble; indeed, scarcely to be counted. The tongue was moist and only slightly furred. The extremities were quite cold; and the pressure of the finger left a white spot in the midst of purple skin, the capillaries of which did not soon refill. The abdomen was very large and tender. There was a large hard tumour centrally placed, and it was round. There was fluid in the peritoneal cavity. Vaginal examination gave evidence of the existence of a tumour, which filled the pelvis and pressed much upon the rectum. It feels solid, but it was thought that the feeling of solidity was due to extreme tension. The uterus was normal in size, but somewhat drawn up; and the vagina was thus elongated. Examined *per anum* the tumour was felt to press much upon the rectum. The urine was said to be in small quantity, but, probably, it was so frequently passed that the friends were deceived as to the quantity. It was free from albumen. There had been constant vomiting since May 1st; and she had retained no nourishment during that time. The diagnosis was ovarian cyst (most likely without adhesions), which had suddenly become enlarged, owing, probably, to the long walk on April 30th. Peritonitis due to sudden change in tumour. As to the possible malignancy of the tumour a doubt was expressed, seeing that the aspect was peculiar, but it was thought that the loss of blood would account for the tint of skin. My (Dr. Wiltshire's) advice was, that the patient should have a nutritive enema containing opium and brandy, that ice and champagne should be frequently given, and that on the following day, should her condition have improved, the operation of ovariotomy should be performed, and, should that not be possible, that the cyst should be tapped for the purpose of giving her relief from the extreme distension of which she complained very much. My friend, Dr. Watson, reluctantly concurred in this.

On the following day, I went down to Tottenham, intending to perform ovariotomy, should the condition of the patient permit it. Dr. Murray kindly accompanied me, and gave Dr. Watson and myself the advantage of his opinion on the case, which was to the effect that most likely there were adhesions, and that probably the tumour was a rapidly growing cancer. Both Dr. Murray and Dr. Watson urged that, as the woman certainly had peritonitis, and as her condition was one of such extreme depression and collapse, it would be very undesirable to operate. However, as the patient was desirous of having something done, asserting that she knew she could not live long, and that she would be glad of some relief from the distress she suffered from distension, and as I felt strongly that the right thing to do was to operate, I pressed the point; for, although it was difficult to give one's reasons, chapter and verse, yet, looking at the case from the fairest point of view, I felt persuaded that it was the right course to pursue. To leave her alone would be to stand idly by and see her die unrelieved, while I thought that, though the case was desperate, yet an operation might possibly give her a chance of recovery by removing that which I regarded as the cause of her acute trouble, viz., the rapidly enlarging mass. My friends reluctantly yielded; and, as the patient gave her consent, having been promised that if her case proved very unfavourable for extirpation I would only do something to relieve her, viz., tap the cyst, I proceeded, with the kind assistance of my friends, to operate. Dr. Watson very skilfully gave chloroform, and, as well as Dr. Murray, otherwise aided me materially. Having placed the patient on the side of the bed, I proceeded to incise the abdominal wall. On reaching the peritoneum, about two pints of glairy yellowish red fluid escaped. Immediately on this a large black mass shot up into the incision. The appearance of this mass was like that of a huge hemorrhoid or the amniotic surface of the placenta. I ascertained that there were no adhesions, but that the size of the mass was very large. I tapped it with Dr. Murray's trocar, and first of all about half a pint of reddish serum escaped, followed by dark venous blood which flowed out to the amount of a gallon. It seemed, in fact, as though I had tapped a venous aneurism. As no more would flow, the trocar was withdrawn, but still the tumour remained of considerable size and was semisolid. I found it necessary to enlarge the abdominal incision to more than an inch above the umbilicus, and I then proceeded to lift up the mass which, in the act of lifting, rent on the side opposite to that on which it had been tapped. A pint or two of blood and clots escaped over the intestines, which, as Dr. Watson remarked, were of a bright red, and, from the brilliant injection, were evidently in a state of acute inflammation. Dr. Murray urged me to get the mass out as speedily as possible, fearing the patient would sink; and having lifted it out of the abdominal cavity, he (Dr. Murray) put a stout ligature of silk around the pedicle which was very short and small. Having severed the pedicle, I turned to put the tumour into a large bason. As I was in the act of turning, Dr. Murray exclaimed: "The ligature's off; she will bleed to death." When I turned to the patient, I found that a stream of arterial blood was issuing from the pedicle, filling the pelvis, obscuring everything. I seized the whole uterus, and having forcibly lifted it up, thus straining the vagina very much, I held the pedicle between my finger and thumb while Dr. Murray put on a small clamp. This, however, would not hold, as the pedicle was so rotten. Afterwards, double silk and silver ligatures were applied, but nothing would hold; and, in sheer desperation, and with a view of arresting the hemorrhage, as a *dernier ressort*, I transfixed and tied the right half of the body of the uterus. The bleeding being thus arrested, I cleansed out the peritoneal cavity and stitched up the wound with deep and superficial silver sutures, and put on some dry lint and a bandage. The operation occupied just one hour. Dr. Watson observed, and Dr. Murray and myself verified, the fact that the pulse improved under chloroform. There was very little sickness. The patient was placed in bed and hot bottles put to her feet; and, when visited again in an hour, was found to be very comfortable, and expressed herself as feeling much relieved. The pulse was fuller and the skin warmer. An enema, containing a drachm of tincture of opium, four ounces of beef-tea, and one of brandy, was given. Pulse 104, firm.

7 p.m. Pulse 124. Retching was relieved by ice and champagne. She had dosed a little, and was cheerful. A grain of powdered opium was ordered. At midnight, the pulse was 120. The enema was repeated. She had vomited several times. The tongue was moist. The ice and champagne were continued; and the pill was repeated.

Mar. 5th, 11 a.m. Pulse 105. She had dosed through the night. She had no pain, and was cheerful. She had taken some beef-tea and wine. She had nausea. 3. p.m. On visiting her with Dr. Wiltshire, the pulse was 105. She took wine and beef-tea. The tongue was clean. She was brighter and her condition was very promising. Ice was taken frequently. The wound was clean and uniting. There was no abdominal distension. The pill was repeated.

May 6th, 1 a.m. She was cheerful. The tongue was moist. Pulse 90. 11 a.m. She had slept during the night. Pulse 85. She was not in pain or sick. She took wine and beef-tea, ice, and champagne. The enema was ordered to be repeated, and the pill to be taken at bedtime.

May 7th. Pulse 150. She had frequent nausea. The tongue was moist; the abdomen flaccid. She had no pain, slept much during the night, and was cheerful. The enema was ordered to be repeated.

May 8th, 11 a.m. She had had no sickness, had eaten some bread and butter, and had slept well. Pulse 87. There was no pain.

May 9th. She was much better in every way. The bowels had acted. Pulse 108.

May 11th. Pulse 100. There was no sickness. She had taken port wine.

May 12th. She was going on well.

May 13th. She ate a chop to-day.

The patient went on admirably, and perfectly recovered without a single bad symptom. There were never any rigors, nor was there a single drop of pus formed. The sutures were removed on the 16th; the wound was firm and sound. The patient went out at the end of three weeks; and, when last seen by Dr. Watson, in the middle of July, was walking about enjoying good health.

When we examined the cyst, we found it to be multilocular and to contain blood, some clotted and some semifluid. Where the rent had taken place, in the act of removal, the cyst-wall was remarkably thin and friable; and it was evident that, had it not been removed, it must inevitably have burst in the course of a few hours, since blood was continually poured into its cavity; and, as the mass had become twisted upon its pedicle, the veins were strangulated, and thus the escape of blood was prevented.

The tumour was exhibited on May 5th, at a meeting of the Pathological Society, and was subsequently presented to the Museum of the Obstetrical Society.

Dr. Murray informed me that microscopical examination gave no evidence of malignity.

Remarks by Dr. Wiltshire.—The case above related will be recognised by everyone as extraordinary; indeed, it is unique.

Both Mr. Spencer Wells and Dr. Keith of Edinburgh, who saw the tumour at the meeting of the Pathological Society, agreed in regarding the case as one of extreme interest. Mr. Wells, in expressing his opinion upon it, said that he regarded it as "a leading case in science;" for to operate deliberately upon a patient labouring under peritonitis was an entirely new principle.

Mr. Wells was kind enough to say that the authors of the paper deserved the thanks of ovariotomists, since the case related showed how much might be done in cases which appeared so desperate as to be beyond hope.

Dr. Arthur Farre kindly gave me the particulars of a case which in some measure resembled mine. A young lady, a patient of Dr. Farre's, had an ovarian tumour, upon which it was determined that Mr. Spencer Wells should operate. When the peritoneal cavity was opened, Mr. Wells found a patch of peritonitis, the existence of which, up to that moment, had not been suspected. The presence of this patch of peritonitis naturally caused much concern, but the operation was proceeded with, and the tumour removed. This young lady made a perfect recovery; and I think I understood Mr. Wells to say that she had since borne several children.

I submit that tkese two cases go to prove that we are too much afraid of acting vigorously when we have to deal with the peritoneum. I believe that it is only in the cachectic that we need fear evil results, and that only in those unhealthy patients in whom, when the subjects of peritonitis, creamy lymph is poured out, do bad consequences follow operations, which, though bold, are yet well considered. I saw Mrs. S. in November last. She was then stout and well: and, on examination, the abdomen and uterus were found to be quite free from anything indicative of disease. I have again seen Mrs. S. during the present month, and, except that she is troubled with dyspepsia, she is very well.—*British Medical Journal, July* 17, 1869, *p.* 52.

103.—A NEW METHOD OF TREATING THE PEDICLE IN OVARIOTOMY.

Dr. Julius F. Miner, in the Buffalo Medical and Surgical Journal (June, 1869), advances what will seem to most surgeons to be a very startling proposition—namely, that in many cases, ligatures, clamps, or cautery, may be dispensed with in the operation for ovariotomy, and the pedicle returned without danger. His opinion is formed upon a case in which he removed an enormous ovarian tumour by the following operation :—

"The tumour was multilocular, very large, weighing, as near as could be ascertained, between seventy-five and one hundred pounds. It was attached throughout its entire circumference to the omentum, intestines, walls of the abdomen, and all other parts with which it came in contact. These attachments were not so firm but that they could be broken up, and with great care the tumour was separated from the surrounding parts until the pedicle was reached. The process of enucleation had been carried on so extensively and successfully that encouragement was afforded for continued trial. The pedicle was large, and extended over a wide surface, but by patient and gentle effort it was separated from its entire attachment to the tumour, and the immense growth removed without the ligation of a single vessel. The terminal branches of the vessels of the pedicle gave out no more blood than issued from the vessels of the attachment elsewhere, and there appeared no more occasion for ligature here than elsewhere. All hemorrhage soon ceased, and the incision was closed by interrupted suture." Dr. Miner adds: "The ovarian tumour is generally composed of a firm, dense, fibrous cyst, containing fluid of very varied colour and composition. It may, and it may not, have a solid portion, but usually it does have more or less of a body, the remnant of an enlarged or degenerated gland. Upon the surface of this smooth dense cyst are spread out the vascular, fibrous, cellular, and other tissues which compose the pedicle, but only the terminal branches of the vessels enter this cyst; the vessels may be quite large at their origin, but soon they are numerously divided and enter the cyst, if at all, of capillary size. The attachment of the pedicle to the cyst is more easily broken than any one would mistrust who has not attempted its separation in the manner described, and I am confident that the same efforts which are made to break up adhesions to the peritoneum, omentum, and other parts, if extended to the pedicle, will, many times, be equally successful."

In cases where this method of enucleation without ligature may be found impracticable, Dr. Miner advises a modification of the principle of acupressure—"that is, a needle with ligature attached, passed transversely through the pedicle, weaving it in such manner as to make pressure upon the vessels sufficient to arrest the circulation. Where this method can be made effectual, it approaches very near in point of favour to enucleation without ligature, since the needle can doubtless be very early removed, and the parts beyond the point of its introduction need not be strangulated or the vitality destroyed so as to produce sloughing."

The plan of enucleation thus suggested is eminently worthy of trial by other surgeons, and should subsequent experience confirm its practicability, ovariotomy will be shorn of some of its most hazardous features. The well-known variability in vascularity of the pedicle of ovarian tumours, however, renders great caution advisable in determining the cases wherein this method should be attempted.—*Medical Press and Circular, Aug.* 25, 1869, *p.* 165.

104.—ON SEA-TANGLE TENTS.

By Dr. J. Braxton Hicks, F.R.S., Physician-Accoucheur, and Lecturer on Midwifery at Guy's Hospital, &c.

[Of all the materials used for dilating the cervix uteri none are so cleanly and efficient as sea-tangle. If it is required to dilate the part to a considerable size it will be necessary to combine three or more tents, as the stem of the alga does not exceed a certain size.]

I have found that they distend to about three times their original diameter, and that in an ordinary state of the secretions they reach their full distention in about fifteen hours; of course some variation will be found in this respect, especially between the different sizes, for the larger they are, the longer the time occupied for them to become wet in their interior, and therefore, generally speaking, the large bundles produce their effect quicker than if made of one piece of an equal diameter to the combined. These two points are important to bear in mind, because where we have to dilate the cervix to a considerable size, and we require to follow in succession, it is best to introduce the next sized tent as soon as the previous one has attained its full dilatation. To leave it in beyond that time not only delays the operation uselessly, but adds much to the chances of uterine irritation. We must therefore have at hand a series of three for general purposes. For instance, when we wish to dilate the cervix in order to pass the finger in easily into the cavity, supposing we begin with one of ⅛ inch diameter; the next size should be nearly ⅜ inch, and the last (if another be required) should be nearly one inch diameter; as this would expand to nearly three inches at its fullest, it would not be requisite to allow it to remain in—unless in a case of pregnancy or imperfect miscarriage, where we want the fullest expansion—so long as to its complete expansion, say for ten hours. Where slight dilatation only is required then one is sufficient, and it should be removed in twenty or twenty-four hours at the longest. For dilating further, we may group the smaller bundles in any numbers we like, but it will seldom be required to go beyond an inch diameter for the last one. If we wish the tents to be more rapid, then it is best to soak them in cold water a short time before introduction.

The purposes to which they can be applied for obstetric purposes are numerous. They can be employed to dilate the smallest os and cervix uteri, either alone or in preparation for the hysterotome: they can for this purpose be made as small as required. In the case of traumatic closure of the os uteri, I have employed it with complete relief. In closures of the vagina from injury, also where the opening is reduced to a pin-hole, they may be employed to dilate up the stricture, preparatory to some more radical operation, or in some cases they may be employed entirely. The effect of the latter plan, however well it may succeed at the first, is liable to pass off, and the contraction to resume its sway. I have found that the bistoury lightly drawn over the contraction, in numerous places, attended by much more satisfactory results ultimately. After operation for opening either vagina or os uteri, these tents may be employed from time to time to prevent the closure recurring. They may be employed to dilate the cervix to a size sufficient to permit us to explore the interior of cervix or the body of the uterus, in cases where polypus is suspected, or where the remnants of an imperfect abortion is supposed to exist. For the same purpose they are of great value to permit us to diagnosticate between polypus and fibroid tumour of the uterus, where the hemorrhage is so great as to require interference.

In cases of flexion of uterus they will assist to straighten out the canal of the cervix, and for a time relieve the patient of the dysmenorrhœa which frequently accompanies it.

Again, in cases of dysmenorrhœa and sterility in married women from contraction of cervix, they can be with great advantage used, because it is clear if the sterility be owing to the occlusion of the cervix, then its expansion should be attended by immediate relief; otherwise we may conclude that other causes exist which give rise to these states, and if after this dilatation the patient conceive, then a permanent cure results. In the single woman, however, the effects are less permanent, and in cases of severe obstruction will be frequently the only means of giving anything like permanent relief.

In some cases, as in malignant disease of cervix where the resistance is considerable, I have employed this substance to dilate, in order to deliver prematurely. These cases however are rare where much resistance exists, and in general it will be better to employ a softer material, as sponge tent, or elastic dilating bag, because they are less likely to scratch and abrade by their extremities than the more rigid sea-tangle tents.

They can be introduced into the cervix uteri in various ways.

First, they may be introduced by a long pair of forceps. The patient being placed on her left side, the forefinger of the left hand, or still better two fingers, if possible, are to be passed to the os uteri. The tent, held by the forceps, is carried along the finger to the os, into which it is introduced. The handle of the forceps should be then brought well against the perineum, so as to throw the tent into the axis of the uterus (in cases of normal position) and very gently pressed forward; after it has passed in nearly its whole length, the forceps should be detached, and the forefinger pressed gently against the end of the tent to keep it *in situ*. In order to retain it there, it is well to pass a plug of sponge with a tape tied round it so as nearly to fill the vagina. It is well to see the urethra is not pressed on, or retention of urine might ensue, causing trouble and alarm. In multiparæ there is no trouble in employing this plan, but in some, particularly in virgins, there is much difficulty in introducing the tent in consequence of the rigidity and drawing up of the perineum. Besides, unless the serrations of the forceps are carefully rounded off at the edges, the vulva and vagina may be scratched, not only causing pain, but adding to the difficulty of introduction in consequence of the movements of the patient.

Another, and in my experience, a better plan, in cases where the extremely small tents are not required, is to employ an elastic catheter with a stillet. A portion of the end of the catheter not quite so long as the tent should be cut off. This will leave the stillet protruding. On this the tubular tent should be passed, care being taken to see the stillet does not extend beyond the end of the tent. The string which is attached to the lower end of the tent being carried down by the side of the catheter, is held by the same hand. The arrangement is then introduced as an ordinary uterine sound: and when the tent is properly within the cervix, the stillet is withdrawn, thereby leaving the tent in the cervix. The finger which is in the vagina should be placed on the lower end of the tent to prevent it sliding out and the sponge introduced as usual. A very convenient little instrument based on this principle has been made by Messrs. Weiss.

There is another mode which will be convenient in some cases, namely, to pass a speculum. Having introduced the tent into the cervix as far as possible by a forceps, the speculum can be withdrawn carefully. A finger is then passed up to the tent, and gentle pressure being made the tent slides in. This plan is good in cases where retro- or ante-flexion exists, but then of course it will be necessary when pressing the tent in with the finger to vary its direction, either forward or backward according to the axis of the body of uterus. In these cases the tent is ultimately placed in the transverse diameter of the vagina. In cases where the inner cervix will not permit the tent to pass, I have managed to do so slowly, by lodging the lower end against the fold in the posterior wall of the vagina, and then plugging that canal as usual. The little irritation produced by this has caused the levator ani to act, so that a gentle pressure is exerted for some time against the inner os, which has ultimately yielded. For the larger groups of tents, it will be found that the forceps will introduce them most readily; for in most of the cases where we wish to use large tents the vagina is so well relaxed, difficulty is rare.

It is very important in order to effective dilatation that the tent should pass the inner os, in all cases where the cavity of the uterus is to be explored. Tents of all knds may fail in this particular, for two reasons: one because they may not have been introduced so far; and another, because they slip out. This is particularly the case with the sea-tangle tents, but as they can be made smaller than any other kinds there is no reason why, if one will not pass, a smaller should not be tried.

In conclusion I may point out the special advantages of tents made of sea-weed.

1st. They can be made of any size, particularly much smaller than sponge tents.

2nd. They have more distending power. The rigidity of the inner os uteri is sometimes so great that even these tents are distinctly marked by it; but the sponge tents not at all unfrequently are unequal to produce any marked impression on the constriction.

3rd. They do not retain the secretions so as to produce so much offensiveness, consequently there is less risk of irritation locally or generally.

4th. By their greater rigidity they can be more readily applied, especially in a tortuous canal.

They have, however, some disadvantages:—

Their rigidity makes them not so suitable in cases where the uterus is readily bleeding, or very tender; nor in cases where the os is somewhat dilated by a polypus or growth distending it. Here a sponge tent is best unless the os and cervix are very rigid.

Their great distensive force makes them less acceptable where the uterus is very irritable.

They should be in all cases so made that no sharp edge be noticeable. In the tubular tents this is a point liable to be overlooked.

And for the dilatation of the os uteri in a natural state for purposes of induction of premature labour these tents are not by any means so suitable as the sponge tents, or as the India-rubber bags.

With these exceptions, in cleanliness, certainty of action, ease of introduction, and minuteness, they are certainly not equalled by any other material at present in use.—*Practitioner, August* 1869, *p.* 84.

105.—ON SPONGE TENTS.

Knowing the fact that absolute or *strong* alcohol will quickly *set* the fibres of common sponge, after having been moulded or compressed into any given size or shape, I was led to the following quick and easy method of preparing sponge tents, tampons, &c.:—The sponge is first thoroughly moistened with water and pressed as dry as the strength of the hand will permit; then having formed it into the desired shape and size by the hand, or by pressing into a quill or any other tube or mould, it is immersed into the alcohol. If the spirit is sufficiently strong (90 to 100 per cent.) the sponge is *immediately* set into the given shape, which it retains perfectly after the pressure or mould is removed. It is then hard, firm, and inflexible, and may be trimmed to a sharp point or any other desired shape. To restore it to its former size and shape it is only necessary to moisten it with a few drops of water. The alcohol sets the sponge perfectly, whether the amount of compression be much or little, so that the degree of dilatation, attainable by the use of tents thus prepared, will, of course, depend upon the size after moulding and the degree of pressure used. As this process of preparation works perfectly and *without delay* its advantages are obvious.—*Dr. J. B. Hough, in Cincinnati Lancet and Observer.—Medical Press and Circular, Aug.* 18, 1869, *p.* 155.

106.—CASES OF HEMORRHAGE FROM THE EARS, EYES, ETC.

By Dr. ROBERT LAW, King's Professor of the Institutes of Medicine; Physician to Sir P. Dun's Hospital; and Consulting Physician to the Adelaide Hospital.

[While there are few if any organs of the body which are not liable to be the vicarious outlet of blood in cases of suppressed or insufficient menstruation, it appears to exhibit an especial predilection for a weak or suffering organ.]

While the lungs and the stomach are the organs from which these hemorrhages most frequently proceed, yet the cases which we are about to detail show that other organs also share in this tendency.

Some years since I brought under the notice of the Association of the College of Physicians, a case of vicarious hemorrhage from the ears, and which Dr. Churchill considered of sufficient interest to give it a place in his valuable book on midwifery; but as the abstract which I supplied him is not very full, and as there is no other record of the case, perhaps I may be permitted to advert to it in order to compare it with another with which it has some points of resemblance and some of difference.

The subject of the case, Mary Murphy, aged 21, was admitted into Sir P. Dun's Hospital, complaining of violent pain of the head, which she ascribed to her having stopped too long in the sea when bathing. On the night of the day of her admission into hospital, she bled and largely from both ears. She complained of pain in each ear, of a distressing sense of fulness which she felt in her head generally, the temporal arteries beat strongly, the face was flushed, while she said her feet were cold. The menstrual discharge had been suppressed for several months, during which she had all the symptoms of which she now complained, but in a less degree, and without the bleeding from the ears.

We directed leeches to be applied behind each ear, that she should have foot bath, and aloetic purgative medicines. These means relieved her, but she bled again from the ears on the third night. We continued the same means, but in addition had leeches applied to the interior of the thighs. The indications of treatment, which we steadily held in view, and upon which we acted, were to divert from the head and to determine to the uterus, and at the same time to strengthen the constitution.

She was a considerable time under care, and it must be confessed we had but little to boast of as to the success of our treatment, only that the intervals of the bleedings were prolonged, but there was no appearance of the return of the menstrual discharge. The hemorrhage from the ears, which occurred frequently, was always announced by an unusual sense of weight in the head, pain of the ears, and throbbing of the temporal arteries, flushing of the face, and coldness of the feet. Although the head was much relieved by leeches and warm foot baths, still she said that this relief was nothing compared to what followed when she bled from the ears. While her feet were constantly cold, her face was as constantly hot and flushed, and during her stay in hospital, which was many months, she had on three different occasions erysipelas of the face. She had one very profuse discharge of blood from the ears, and after it seemed to improve so much that I advised her to leave hospital, hoping that she would be benefitted by a change, although not expecting much while the menstrual discharge was not restored.

She left the hospital, but was not long out when she got hematemesis, of which she had repeated returns, with occasional bleedings from the ears.

She first came under my care in June and left early in Dec.; she was re-admitted into hospital on the 1st of the following month, and between this and 27th of April she bled twice from the ears, and discharged repeatedly from the stomach large quantities of dark grumous blood. The other symptoms then present were violent headache, severe darting pain in right ear, with pain between her shoulders and across the loins. On the 9th of June, these symptoms were much aggravated, and on the evening of that day she had a more copious hemorrhage from the ears than she had ever had; her sheets were literally soaked in blood. She now told us that she had had, as nearly as possible about a month since, a slight appearance of the menstrual discharge.

She now became affected with diarrhœa attended with violent pains through the bowels, which only yielded to large doses of opium often repeated. Her health now improved considerably, and for six weeks before she left us she had no discharge of blood of any kind. She ultimately got quite well, but not until the menstrual discharge was restored.

Mary Anderson, aged 30, servant; unmarried, a stout, strong-made woman, was admitted into hospital complaining of distressing soreness of her stomach, and pain in her left shoulder, and extending down the arm, which was rigidly flexed, and the least attempt to move it caused great pain. Pulse 54, with respiration short, hurried, and nervous, jerky—face flushed. She exhibited a peculiarly nervous, frightened appearance. Just before her admission into hospital, she discharged a large quantity of blood from the stomach. She states that five months before this, her illness began with pain in the left shoulder, extending through the arm, and even to her fingers. At the same time she had pain of the stomach, and constant vomiting. She was ill a month when she discharged from the stomach a large quantity of blood. She was now carried to bed in a fainting state, and did not leave it for two months, during which time her arm became swollen and powerless, and very painful. She now got better, but the amendment did not last. She was seized with the vomiting of blood, which caused her to be removed to the hospital. She observed that the vomiting of blood returned every month, and that the menstrual discharge, which occurred at the same time, was regular generally both as to time and quantity. Leeches were applied to the shoulder, and relieved it, and she was ordered such medicines as her nervous symptoms indicated. She had been five days in hospital when the report was, her nervous symptoms are much less, respiration more natural, pain of arm less, but she complains of pain and stiffness in left leg. She also complains of pain along the spine, between the shoulders and loins. She was admitted into hospital February 12, and on the 21st she bled from the *eyes*. She complained much of sickness of stomach, and stiffness of left leg. The left arm much less stiff, respiration much more natural and free.

23rd. Has considerable pain in left popliteal space and groin, the vein all along the leg has a corded feel and is painful, especially in popliteal space and groin. Leeches were directed in the course of the vein, and stupes.

27th. The arm is quite free, the leg still painful, and vein hard and corded, particularly near the foot, the dorsum of which is swollen and painful; face flushed, eyes suffused.

March 2nd. Has bled very much from right eye. The vessels of both conjunctivæ very much congested. Condition of leg improved, less stiff, and less painful.

3rd. Has a peculiar nervous tremor of the eyelids.

5th. Menstrual discharge now present; had epistaxis this morning.

9th. Bled again from the nose.

10th. Menstrual discharge has now ceased, having continued five days. She complains of numbness in leg.

25th. Is much stronger, and has more use of leg. Has had slight epistaxis, which relieved a feeling of weight in her head.

31st. Again complains of pain in left shoulder; has copious lachrymation, and a serous discharge from the ear; skin bathed in profuse perspiration.

April 1st. Bled a little from the eyes.

2nd. Menstrual discharge now present.

5th. Menstrual discharge has ceased.

May 11th. Since last report, has been gaining strength, and feels herself quite well, except that the left leg is not strong, and makes her a little lame.

This case differs from Murphy's in this remarkable particular, that while in the latter there was complete amenorrhœa, in the former this discharge appeared normal both as to time and quantity, and still this quantity did not seem to satisfy the system. There was besides the hemorrhage from the eyes, the epistaxis hematemesis, a serous discharge from the ears, profuse lachrymation and profuse perspiration; and that these hemorrhages bore some relation to the menstrual discharge would appear from their coming on at the same time as the menstrual discharge. In Murphy's case there was the bleeding from the ears, the hematemesis, and diarrhœa. I should also place with these the erysipelas of the face as having a relation to the other symptoms.

Everything connected with Anderson's case bespoke aggravated hysteria. It exhibited to us a remarkable instance of what is often observed in hysteria, the interruption to the normal ratio of the respirations and pulse, the former so much exceeding the latter—as first noticed by Dr. Elliotson. The hurried, short, jerky respiration, auscultation not detecting the entrance of any *air* into the lungs, was characteristic. The painful and swollen condition of the upper extremity, and on its being relieved the affection of the lower extremity in the form of phlebitis, are interesting epiphenomena, and reminded us, in the case of the affection of the lower extremity, of what not unfrequently comes on in the course or towards the termination of fever which has been attended with nervous symptoms—not very unlike phlegmasia dolens—but which occurs in men as well as in women, but more frequently in the latter (independently of the puerperal state), from their greater nervous susceptibility.

The records of medicine furnish us with cases of hemorrhage both from the ears and eyes, but they are few. We had expected to have found them noticed by Frank in his very full observations, "de profluviis cruentis," but there is no mention of them there. He seems, however, to have got a glimpse of the vaso motor functions of the nerves, and regrets that the subject has not had the measure of attention bestowed upon it that its importance entitled it to.

I have little doubt but that when our knowledge of the influence of the vaso motor nerves has increased, we shall then and there find an easy explanation of many of those strange phenomena which are met with in hysterical affections, as well as in others of a nervous character. We observe this influence very strikingly in various cutaneous affections, as in herpes zoster, whose dependence on the nervous system is now generally admitted. We conceive ourselves warranted in regarding the erysipelas of the face, which occurred three times with Murphy while under our care, as more than a mere accidental complication, and that it bore a certain relation to the hemorrhage. In the same light we regarded the lachrymation and profuse perspiration in Anderson's case, in which nature was not alone not satisfied with the menstrual discharge, which appeared normal both as to quantity and as to the period of its coming, but required besides the discharge of serum from the ears, of blood from the eyes, stomach, and nose, and further still, this profuse lachrymation and perspiration. Perhaps we may be warranted in looking upon the diarrhœa that occurred in Murphy's case in the same light as supplementary to the hemorrhage from the ears and stomach.—*Dublin Quarterly Journal, May* 1869, *p.* 313.

ADDENDA.

107.—ON CHLORAL.

By the EDITOR OF THE LANCET.

Chloral, the new hypnotic and anæsthetic, as its author, Liebriech of Berlin, defines it therapeutically, has become a subject of interest in England at a fortunate period,—that is to say, at a period when, in the absence of all other topics of a like kind, it can stand alone, and invite universal attention. To this circumstance it owes an unusually fine introduction to the medical world; but it has, stripped of all the exaggerations which have been made concerning it, qualities that give to it real significance. The substance which has created all the attention, which Liebriech uses, and which, at the request of the British Association for the Advancement of Science, Richardson experimented with and reported upon at Exeter, is strictly not chloral itself, but the hydrate of that body. Chloral ($C_2Cl_3O\,H$) is a colourless fluid, with a very high boiling point (210° Fahr.), and a sharp pungent odour. It becomes the hydrate of chloral on being mixed with water, and exists then as a white, solid substance, having a pungent odour, with which is combined the odour of ripe melon. The hydrate dissolves readily in water, and thirty grains of it dissolved in forty of water make up one fluid drachm of a saturated solution. It can be given in solution either by the mouth or by subcutaneous injection.

The idea that the hydrate of chloral is intended to supersede chloroform, bichlorite of methylene, ether, or the other volatile anæsthetics, as an agent for removing pain during the performance of surgical operations, is an error. Whatever may have been the hopes of the distinguished Liebriech himself on this point, when he originally thought of employing the agent, they have not been realised. Nor has the substance been put forward as the rival of the agents named for surgical anæsthesia. It is as the rival of opium that hydrate of chloral claims our consideration. Speaking simply of its effects on the body, and leaving out of view the theory of its action, and its supposed decomposition within the organism, we may state definitely that the hydrate when administered in an efficient dose (a drachm is not an immoderate dose for an adult) produces on men and on the inferior animals a kind of stupor or sleep, which may be made to extend over five, and even seven hours with comparative safety. The stupor is sometimes preceded by nausea, and in birds it is always preceded by vomiting. It is attended with great muscular prostration, and with decrease of animal temperature. During the period of stupor there is an interval of perfect insensibility to pain; but the interval is short, and for the greater part of the period the sensibility is either natural or *exalted*. This fact of the exaltation of sensibility, which was specially dwelt upon by the reporter at Exeter, has been confirmed by the researches of Demarquay, of Paris, whose paper was noticed in the Lancet of last week. It is a fact as curious as it is important; and, indeed the whole subject is one of singular interest. But, as we have already hinted, the first question to be made out in practice is: whether hydrate of chloral can be used for sustaining sleep in the same class of cases as those in which we now administer opium. To this question we would direct the attention of the profession, forewarning the prescriber at the same time that his experience, in a pecuniary sense, will at present have to be bought at the average cost of two shillings and sixpence per dose of the medicine.—*Lancet, Oct.* 2, 1869, *p.* 481.

108.—ON THE HYDRATE OF CHLORAL.

By Dr. Benjamin W. Richardson, F.R.S.

The remedy is intended to produce insensibility to pain with prolonged sleep.

At the onset, however, let us understand this point; the insensibility and the sleep this hydrate produces (and, whether it acts well or ill, it has the virtue of producing both states) is not an insensibility and not a sleep intended to represent or to rival in action the action of the volatile anæsthetics we use for the abolition of pain during surgical operations.

True, it would not be inconsistent to apply it for operations; for although it is not, as we use it, readily applicable, it might be administered for the surgeon by the mouth, as, in the old time, mandrake was recommended to be given by Dioscorides and Pliny. But it is not, I repeat, the intent to set up this new substance a rival to the well known volatile anæsthetics, because it is not so good for the purpose as many other agents with which we are familiar—not so good because not so ready, and perhaps not so safe.

Whatever of useful intention there is in the introduction of hydrate of chloral is included in the virtue it possesses of causing prolonged sleep. We meet every day of our lives with cases of disease in which we wish to give the patient a long and peaceful sleep—a sleep which shall represent faithfully the natural rest—the sleep

> "That knits up the ravelled sleeve of care,
> The birth of each day's life, sore labour's bath."

And we try, by artificial means, to induce this sleep. Do we succeed?

For the accomplishment of this great and merciful end we have had in our hands for ages one grand remedy; we call it often our sheet-anchor. The remedy is opium. How we prize it! We know it so well, we do not readily appreciate what it would be to have it taken from us, nor feel that in its absence, half our art of usefulness in this world would be lost. We learn to apply it in different ways and in different forms of combination; and it is to be admitted, by all candid minds, that we succeed marvellously. Dr. Dover for instance, when he invented that magic powder which bears his name, did a something in science which, for practical usefulness to the human race, surpasses a thousand more brilliant discoveries. But, after all, with endless manipulation and practice, opium does not answer each of our desires. It commonly causes nausea, sometimes vomiting; it leaves behind it headache; it destroys appetite. Wanted therefore, a remedy that shall have the advantages of opium, and none of its disadvantages. We look anxiously for this remedy. The intention of hydrate of chloral, be the result good or bad, is to furnish the remedy in question. I do not pretend for a moment to say that it perfectly supplies the want, but this must be considered to be its intention; and I now proceed to relate how far, according to our present knowledge of it, it answers to the call. Perhaps, if it does not answer every particular expectation, it may answer some particulars.

We may pass now to consider the physiological action of hydrate of chloral. Up to the present time it has been administered in solution with water, either by subcutaneous injection or direct by the mouth. The best solution is made by mixing one grain of the hydrate with two of water. I shall show you, however, a new fact in a little time—namely, that the substance can be administered, to some extent, by inhalation.

The hydrate appears to act on all classes of animals. I have tested it on frogs, on fishes, on birds, and on herbivorous and carnivorous mammals. In this respect it resembles all derivatives from the alcohols, while it differs from opium, which, on pigeons and other herbivorous birds, is practically negative. The dose which produces effect varies considerably, according to the size and weight of the animal. Pigeons weighing from 8½ to 11 ounces are thoroughly narcotised by 1½ to 2 grains, and die when the dose administered exceeds 2½ grains—*i.e.*, if the dose be injected subcutaneously. Rabbits weighing 83 to 88 ounces are fully narcotised by thirty grains. A frog weighing six drachms is well narcotised with half a grain; a mouse weighing four drachms with a third of a grain. An adult human being will take by the mouth, one hundred and twenty grains as an extreme dose.

In all cases, whether in experiment or otherwise, the solution of the hydrate should be tested for reaction. If it be found acid, it should be neutralised with a minute quantity of ammonia; but extreme care must be taken in adding the ammonia, or some of the hydrate will be decomposed into formate of ammonium and chloroform.

Before proceeding further, I pause to place before you the theory of the action of the hydrate of chloral as propounded by Liebreich. We have seen that when the hydrate is treated with an alkali it is resolved into chloroform and a formate. The blood is an alkaline fluid; therefore, says Liebreich, when the hydrate is introduced into the organism, every small particle of it will consume the surrounding quantity of alkali, and the decomposition will be completed only after the required amount of alkali has been furnished by the blood. In the smallest point of time the minimum quantity of chloroform is formed, and passes to the first place of action—viz., the ganglia cells of the cerebrum. The action with the increase of chloroform in the blood extends to the ganglia of the spinal cord; lastly, it extends to the ganglia cells of the heart. The action corresponds with the slowest possible application of chloroform, and he concludes, in reference to the ultimate removal of the chloroform from the body, that it is not resolved by oxidation into carbonic and hydrochloric acids, but passes off as chloroform. This agrees with the researches by Snow and by myself in regard to extrication of chloroform simply. Such is the theory of action of chloral by Liebreich. He gives in addition a splendid array of experimental facts relating to the phenomena produced in animals and men by this agent when it is administered by the mouth or by subcutaneous injection. From all his researches we gather from him:

(*a*) That the hydrate in efficient dose produces deep sleep quickly after administration, and, when carried far enough, complete anæsthesia.

(*b*) That the action is without excitement.

(*c*) That the agent leaves no bad after effects.

(*d*) That the nervous power of the heart is the last that suffers.

(*e*) That the agency at work is chloroform, chemically made, we may say, in the body.

I will now move to a recital of my own experiments and observations, illustrating by experiment as I pass along. We will in this way follow the action of choral from the lower to the higher classes of animals.

Effect on Frogs.—Frogs come rapidly under the narcotic influence of choral. To a full-sized frog, half a grain acts as an efficient dose in from six to nine minutes. Three-quarters of a grain will be borne by some frogs, but as a rule this animal sleeps to death under so large a dose. So soon as the agent begins to take effect there is drooping of the head, relaxation of the limbs, closing in of the eyes and profound stupor. The animal is cataleptic in regard to motion, its limbs remaining in the state in which they were left. It will lie in this torpid condition for a period even of twenty hours. You see before you two frogs thus sleeping. The one in which the breathing is imperceptible has had a large dose of the narcotic, and is *possibly* dead. The other, which is softly breathing, has had a smaller dose, and about this time to-morrow, if the temperature of the air be not over 60° Fahrenheit, will begin to wake up. There is no sensibility in animals thus sleeping; there is not even reflex sensibility. They sleep on when every function of life is at rest except one—the circulation. In illustration of this fact, you will see a remarkable phenomenon in the web of a frog's foot which Dr. Sedgwick has placed under the microscope. The animal before being placed under the microscope was put to sleep profoundly with a full dose of chloral. It is sleeping now so deeply that it would pass for dead; and yet you will see in the web of its foot that the most perfect circulation is going on—in fact, in the midst of all this death, there is some feeble motion of the heart. Liebreich's view that the heart is the last part which dies under chloral is thus confirmed, and the fact tends also to confirm his theory that chloroform formed within the organism is the cause of the sleep; for, as some of you will remember, I took occasion to show last year that, under chloroform purely, the heart is the last organ that dies.

When a frog recovers from the deep narcotism we have seen, it recovers perfectly. No bad symptoms remain behind.

Fishes.—Fishes are readily narcotised by the hydrate of chloral. We may administer it to them by inhalation—that is, by mixing the agent with the water in which they float. They absorb slowly in this way, but at last fall asleep. Here is a large carp lying as deeply asleep as you could wish to see. It breathes regularly and gently, and is altogether oblivious and insensible. This animal has absorbed the narcotic by the gills; but here is another large carp which Dr. Sedgwick has put into deep sleep by subcutaneous injection of five grains of the hydrate. It, too, is oblivious, and will remain so probably for four or five hours. To insure its recovery, the water it floats in must be frequently changed, so that the eliminated products may be quickly carried away; the subcutaneous injection of a fish for the production of narcotism is a novel experiment.

Mice.—Mice are readily narcotised with the hydrate. For a mouse weighing half an ounce, a quarter of a grain is sufficient to secure a long sleep. Mice thus put to sleep lie precisely like dormice in a state of hybernation. They pass into sleep without any excitement; they recover without any baneful symptom.

Birds.—Pigeons weighing from eight to eleven ounces are readily narcotised with from one and a half to two and a half grains of the hydrate. No excitement precedes sleep; but the birds, as after chloroform, usually show signs of nausea as they become drowsy. The character of the sleep and the degree of insensibility vary with the dose. A dose of one grain and a half produces drowsiness in ten or twelve minutes at most; deep sleep in one hour and a half, and an interrupted sleep of three hours. During this period the time of complete anæsthesia may be short—not more than five or six minutes. At other times there are reflex movements, and the animal, when moved, wakes to a semi-consciousness. A dose of two grains produces sleep in ten minutes, with perfect insensibility lasting twenty-six minutes. The sleep continues three hours. A dose of two grains and a half by the mouth produces drowsiness, with complete insensibility, in one hour. The perfect insensibility may last fifty minutes, and the drowsiness continue after this from two to three hours. In one case recovery from this dose was accompanied by convulsive movements, and danger seemed imminent for a time, but in the end the recovery was perfect. A dose of two grains and a half will produce complete anæsthesia usually in twenty minutes, and the anæsthetic condition will last from one to two hours, and in thirty or thirty-five minutes there will be restoration of consciousness, still with drowsiness. Recovery is accompanied with tremors, and is completed in six hours. In one instance this dose produced an insensibility which lasted three hours and a half; and, for a time, the evidences of life were so reduced that the bird was supposed to be dead. Nevertheless, recovery was perfect. A dose of five grains produced insensibility of the profoundest kind in sixteen minutes, with death preceded by convulsive movements in fifty to sixty minutes. A dose of seven grains and a half produced insensibility in five minutes, and death in forty-seven minutes, preceded by convulsive movements. In all the cases on which these facts are based the odour of chloroform was distinctly perceptible in the breath of the animals shortly after the administration. The odour lasted a very few minutes. In every instance there was one prominent and persistent effect following upon the administration, which effect deserves to be named separately. There was decrease of animal temperature extending through the whole period of the action of the hydrate. One grain and a half brought down the temperature two degrees Fahrenheit; two grains and a half, five degrees; and five grains, eight degrees.

Rabbits.—The hydrate produces in rabbits the most perfect and prolonged sleep, without any preliminary excitement, sign of oppression, or disturbance. The administration may be made by the mouth or by subcutaneous injection, the dose by either method being the same. The quantity of the dose varies with the weight of the animal. A rabbit weighing from seventy to eighty ounces will be narcotised completely with a dose of thirty grains, but it would bear forty grains without being subjected to serious danger; a rabbit weighing twenty to thirty ounces will go to sleep under a dose of nine to twelve grains, but will bear fifteen. Drowsiness usually commences in from fifteen to twenty minutes, without any sign of preliminary excitement; then follow want of muscular power, beginning in the hinder limbs as under chloroform, dilatation of the pupil, dilatation of the vessels of the ear, universal muscular relaxation, and soon deep sleep.

Of the character of the sleep you can judge for yourselves, for there are animals before you in all the stages of narcotism. One is just passing into sleep; one is recovering; one is in a very profound stupor, insensible to every external impression, and is so mobile that in whatever position you place the limbs or bend the body the position is retained; a fourth is in deep sleep, but appears impressionable, for when you touch it ever so lightly there is an involuntary start. I noticed this condition—which we may perhaps, call hyperæsthesia—in the very first experiments I made with hydrate of chloral, and Demarquay, of Paris, has since observed and dwelt upon the same fact with much force: as I become better acquainted with the action of the hydrate this symptom appears to me of less moment. I doubt whether the movement is anything more than reflex—that is to say, I doubt altogether whether in any sense it is due to consciousness of impression—pain.

The sleep will last from four to five hours, and the animal will recover as from natural sleep, except that drowsiness will be more prolonged. The desire for food after the recovery is urgent, and no untoward event marks or mars the process of recovery.

In other animals the same series of phenomena are observable after a dose of the hydrate. Here is a young cat to which an excessive dose has been administered, so that she shall sleep to absolute death. There is evidence of life in this animal, for there is gentle breathing and action of the heart, but in every other respect there is perfect death; gradually the breathing will cease altogether, and then the heart. It is impossible to describe the gentleness of this mode of death; indeed there is a period when it is hard to say whether there is life or death, so gradual is the transition.

Man.—In man the same series of symptoms extending to the extreme changes would without doubt be induced by an efficient dose of the hydrate of chloral; for in so far as the symptoms have been traced, they tally with what we have seen in the lower animals. Long sleep lasting over several hours has been caused in men and women by doses of the remedy vary from thirty to sixty grains, and men in the frenzy of acute mania have been brought into quiet and sleep by doses of one to two drachms. The sleep is gentle, seems to be attended with no symptom of distress, and leaves no serious evil behind. Nausea is, however, occasionally felt after recovery.

In the case of every animal, from the lowest to the highest, the sleep is induced not merely without pain, but with expression of pleasure. Rabbits arrange themselves to sleep in the most natural manner, and cats purr as they pass into rest in obvious comfort of repose.

I have spoken once or twice incidentally on the weight of the animal as influencing action of dose. This deserves particular notice. In the lower animals there is, we may almost say, a common rule in respect to weight of animal and dose of hydrate; thus an animal weighing, say, three ounces, requires one grain of the narcotic to be brought fairly and fully under its influence. If the proportion of dose be beneath this, the symptoms will be imperfectly developed; if it be much exceeded, the symptoms will end in fatal sleep. In the human subject allowance would have to be made in relation not only to size and weight, but to obesity or leanness, to natural habit, and actual state of body in respect to sensibility. But, in spite of all these modifying influences, the rule respecting dose given above would, I believe, be approximately true, and the knowledge of it accounts for the fact of the large doses which have recently been administered in France, apparently with impunity, to the human subject.

Summary.—The effects of hydrate of chloral may be summed up as follows:—

(*a*) Deep and prolonged narcotism can be safely produced by the hydrate of chloral.

(*b*) During a portion of the period of narcotism there may be complete anæsthesia with absence of reflex actions, and a condition in which every kind of operation fails to call forth consciousness.

(*c*) During the narcotism there are intervals of apparent exalted sensibility.

(*d*) In the transition from drowsiness to stupor there is no stage of muscular excitement, but in birds there is vomiting, as is common in the same animal in the second stage of narcotism under chloroform.

(*e*) During the narcotism produced by the substance there is invariably reduction of temperature.

(*f*) The hydrate produces muscular relaxation, which relaxation extends to the muscles of volition and alike to the iris and the muscular arterial system. From the condition of the muscles after death we may infer that this paralysis is in part due to change within the muscular structure itself.

(*g*) The action of the substance on the nervous system is primarily on the sympathetic ganglia, afterwards on the cerebrum, and finally on the heart.

(*h*) Recovery, when it takes place, is followed by no bad results.

(*i*) In fatal cases the functions destroyed are :—1. The cerebral. 2. The voluntary muscular. 3. The respiratory. 4. The heart.

(*j*) The substance in small proportions arrests in some degree the coagulation cf the blood, and in large quantities stops the process of coagulation altogether. In large quantities it also destroys the blood corpuscles and produces general destruction of blood, but the dose required to produce extreme narcotism need not be so large as to lead to serious derangement of blood.

(*k*) The phenomena observed correspond with those observed under chloroform, and the balance of evidence is that they are the result of the action of chloroform.

Therapeutical Value of Hydrate of Chloral.—The last point we have to consider relates to the therapeutical application of the hydrate. I may premise that the dose to the human subject varies, according to the age of the subject or according to the effects desired by the administrator, from seven grains to two drachms. For young children Liebreich recommends seven grains as the dose. For adults, if short intervals of sleep are required, from twenty-five to thirty grains may be administered, and may be repeated every two or three hours, by which a safe and continuous action may be maintained. In cases where more determinate effects are demanded at once, from one to two drachms may be given at once.

The hydrate may be prescribed in solution with water. It must be well diluted—say in proportion of ten grains to the ounce of water, for it is pungent if not well diluted. The addition of a little tincture of orange, as suggested by Liebreich, is an advantage when the substance has to be swallowed. Altogether, I prefer administration by the mouth rather than by subcutaneous injection. The agent acts quite as well and as quickly when thus administered, and in the same dose. I also myself prefer to prescribe moderate and frequently repeated doses rather than one large dose.

Liebreich, in his communications, recommends the hydrate of chloral for neuralgia and rheumatism, for convulsive cough and tetanus, for acute mania and delirium tremens, for gall-stones, for removing the pain of small surgical operations, and for local application for the relief of local pain. In cases where there is gastric irritation, as from ulceration, he thinks it should not be administered by the mouth, but should be injected subcutaneously. He seems to have obtained the best results from its use in cases of acute mania and delirium tremens.

We may ourselves draw the clearest indications of therapeutical value from the experimental facts connected with the action of the hydrate which have been presented to us in experiment, Let us sum these facts. The hydrate *produces sleep*, *removes sensibility*, *brings down the animal temperature*, *and causes extreme muscular relaxation.* Taking these facts as our guide, we may reasonably put it to the test for the relief of various diseased states and conditions.

1. Because the hydrate *produces sleep*, it may be employed in cases of sleeplessness and excitement where opium or other narcotics are objectionable. It may thus be used in acute mania, in delirium tremens, and possibly during hysterical excitement.

2. Because the hydrate *relieves pain*, it may be administered as a substitute for opium, or independently, in cases of suffering from acute pain, as in neuralgia, rheumatism, cancer. It may also be used for the same intention in surgical cases attended with much suffering, and may be carried in such cases, when required, to the extent of rendering a painful part sufficiently insensible to admit of its being altered in position or readjusted. We often have cases of painful disease of joints—strumous disease of the knee-joint, for example—where an agent like the hydrate of chloral may become of the greatest service for the purpose just described. The same application may likewise extend to the treatment of compound fractures where it is important that the injured parts should be moved without the excitement attendant upon suffering.

3. Because the hydrate *reduces the animal temperature*, it may be tested, with every probability of advantage, in cases where

there is rapid increment of heat—fever—with restlessness and excitement. I select cases of surgical fever as cases singularly happy in illustration of this position. In examples where accident or surgical operation is succeeded by heat of body with constant pain, sleeplessness, and tendency to delirium, I can imagine no treatment bettter than the administration of moderate and frequently repeated doses (say twenty to thirty grains every two hours) of the hydrate. Under its influence sleep would be induced, pain and excitement relieved, temperature brought down, and undue waste suspended. What is more, the tendency of the agent is to maintain the fluidity of the blood, and thus to prevent the most dangerous of all occurrences in acute disease, separation and deposition of fibrine in the circulatory system.

4. Because the hydrate *produces extreme muscular relaxation*, it may be reasonably employed in various cases, medical and surgical, where it is necessary to overcome muscular resistance or spasm. Thus it may be employed in tetanus, in cases where there is passage of gallstone, and, I should think with special advantage, in strangulated hernia. In this latter case it would have a double meaning. It might be employed not only for rendering reduction by the taxis easy, to the avoidance of an operation, but if operation were afterwards unavoidable, it would tend to remove the pain of the operation and to be of service to the operator by sustaining relaxation.

It is unnecessary for me to trouble you with further suggestive details. The physiological action of the hydrate of chloral understood, its applications will occur equally to all ; I shall therefore be content simply to record that the external use of chloral for the relief of pain as recommended by Liebreich does not, according to my experience, correspond with its usefulness as an internal remedy. I find that when applied to the skin it creates some irritation, and in a typical case of superficial and local neuralgia, where I have employed it for a week with great care, it has had no effect in relieving the pain of the sufferer.

I have intended in this lecture to have brought before your notice some experimental facts bearing on the value of some chemical substances allied, in physiological action, to the hydrate of chloral, but the hour has long expired, and I must reserve what has to be said on this matter for a future occasion. Meanwhile, it is but just to accord our warmest tribute to the genius and industry of the distinguished Professor in Berlin, Liebreich, who has placed in our hands so admirable and scientific a remedy as that we have discussed to-day.—*Medical Times and Gazette, Oct.* 30, *and Nov.* 6, 1869, *pp.* 509, 537.

109.—ON HYDRATE OF CHLORAL, AND ITS USE IN PRACTICE.

By T. Spencer Wells, Esq., Surgeon to the Queen's Household and to the Samaritan Hospital.

Through the kindness of Professor Bardeleben, of Berlin, I received last July about two ounces of hydrate of chloral, a substance which had been brought before the Medical Society of Berlin as a new hypnotic and anæsthetic on the 2nd of June, by Dr. Otto Liebreich, Chemical Assistant in the Pathological Institute of that city.

Chloral and chloro-acetic acid were discovered thirty years ago by Liebig. When anhydrous alcohol is acted on by perfectly dry chlorine gas, a remarkable result takes place. Five-sixths of the hydrogen of the alcohol are removed and are replaced by three of chlorine, and after separation of a large quantity of muriatic acid, a dense oily liquid, chloral, $C_4HCl_3O_2$, is obtained.

[When chloral is given internally it is absorbed and enters the blood, the alkali of which sets free chloroform in the tissues. The chloral is in fact decomposed into chloroform and formic acid; the latter, however, is in very small quantities, and can have very slight effect.]

A minute dose of chloral was sufficient to produce the symptoms of narcosis from chloroform in a young rabbit; the animal fell gradually asleep, but without the stage of excitement. Regular pulse and respiration were the only evidences of life.

In a middle-sized rabbit complete hypnosis was produced during nine hours by an injection of seven grains of chloral, which correspond to about three grains of chloroform. Experiments on frogs are still more conclusive. The first effect of chloral on frogs is a cataleptic stage, during which the animal may be placed and kept in any position, but reflex motion may be produced by irritation. In the next stage, however, no reflex motion can be effected. If the dose is not too large and fatal, the animal returns to its former condition. If, however, the dose is too large and the animal dies, the ventricles and the auricles will be found distended by blood. Death takes place from paralysis of the heart. The same effect has been observed in other animals. Liebreich concludes from these and other experiments that chloral at first paralyses the ganglionic cells of the brain and then those of the spine, and, if fatal, finally the ganglionic cells of the heart. The effects of chloral on animals are identical with those of chloroform. The absence of the stage of excitement may be explained by the more gradual formation of chloroform within the animal body—actually in the tissues of the body, even in the brain itself. Liebreich tried also the effect of chloral on man, in the Charité, at Berlin. The first experiment was made on an insane person, by subcutaneous injection, at first of very small doses. No local irritation took place. One dose of about twenty grains of hydrate of chloral produced five hours' sleep.

In another case of a patient suffering from stupor and melancholia fifty grains of chloral in a wineglassful of water produced sleep during sixteen hours. In a very painful inflammation of the wrist-joint in a woman, forty grains of chloral produced sufficient anæsthesia to admit of the painless application of an apparatus. In every case the sleep was normal, and followed in about five minutes after the administration of chloral.

Having read the paper of Liebreich from which the above statements have been kindly abstracted for me by my colleague, Dr. Junker, I dissolved fifteen grains of the *chloral* (using this word for convenience instead of the more correct "hydrate of chloral") in an ounce of water, and drank the solution. The draught was rather pungent, and was followed by a sensation of heat in the throat and stomach, but not to an unpleasant extent. I continued my ordinary occupation during the day, and found very little effect of any kind from the dose. I felt, therefore, quite safe in giving 30 grains to a young married lady whom I saw in consultation with my friend, Dr. Frank, of Cannes, suffering for the fourth time from a severe and intractable attack of sciatica, and Mr. Squire undertook to make up prescriptions and procure a further supply of the chloral. From one to two grains of morphia by subcutaneous injection had been required to give relief to our patient, $\frac{1}{60}$ of a grain of atropia being added to prevent the sickness which, without this corrective, was invariably severe and protracted. Even this large dose of morphia, always successful in calming pain for the greater part of the night, procured, as a rule, but little sleep, and that was disturbed by delirium and distressing startings of the affected limb. Atropia alone gradually increased to $\frac{1}{24}$ gr. (by subcutaneous injection), did no appreciable good, not soothing the neuralgia, although the toxic effects of the drug were disagreeably evident. The morphia and atropia injection was suspended during a lull in the severity of the neuralgic paroxysms, and during a period of three days extreme and distressing restlessness with absolute sleeplessness prevailed. I had twice introduced six acupuncture needles with only temporary relief. The neuralgia, favoured by the exhaustion consequent on want of sleep, threatened a relapse with all its former vehemence, and a return to opiates would have been inevitable if the timely arrival of the chloral had not offered a new resource. Thirty grains of chloral given at this juncture procured for the patient the best night she had enjoyed since the commencement of her illness—a night of perfectly tranquil sleep, from which she awoke fresh and well as from natural slumber. The dose was repeated the following evening with the same effect; but the patient had rather a troublesome headache in the morning. Subsequently the dose had to be increased to 45 grains to insure a perfect result, which was always obtained except on one occasion, when, on account of a rather severe relapse of the neuralgia, $\frac{1}{2}$ gr. of morphia and $\frac{1}{60}$ gr. of atropia had been injected two hours before the chloral was administered. Morning headache not yielding to coffee, was constantly complained of, and in that respect the result differed from those reported in the German journals, where the absence of distressing after-effects is described with especial emphasis. The patient complained a little of the burning taste of the drug, but her appetite, never good, was even better than usual, and the digestive functions were not at all interfered with. She had but little sleep when the remedy was suspended, but none of the distressing restlessness following the interruption of the morphia injection. The sciatica having since all but yielded to the application of the actual cautery to the back near the roots of the left sciatic nerve, the patient has been able to give up the chloral after a course of three weeks, abandoning its use with much reluctance.

The next trial was made in the case of a lady, another patient of Dr. Frank's, the subject of occipital neuralgia. During a long period of suffering all ordinary sedatives had proved themselves conspicuously unavailing, in whatever way or combination administered. Three applications of the continuous current had been productive of very marked relief, but after a fourth *séance* the neuralgia became intensified, and symptoms of diffuse cerebral irritation were evident. Thirty grains of chloral produced no hypnotic effect under these circumstances, and the patient suffered so much from burning pain in the throat and stomach that she declined further experiment.

[In the next case related in this paper, the whole of the uterus and both ovaries were removed by abdominal section, on account of a large fibrous tumour.]

The patient went on wonderfully well, but required opiates at night, and these led to sickness and headache, so that on July 28 I gave a draught containing thirty grains of chloral at bedtime instead of the opiate, and the report next day was that she had passed the best night since the operation, had neither headache nor sickness, and a good appetite. This lady was taken twenty-four miles in an invalid carriage eighteen days after the operation, and has steadily improved since, not having taken more than two or three doses of chloral after the first.

I prescribed chloral for another patient on July 28—a gentleman whom I have attended occasionally for nearly twenty years past with a very slowly progressive form of locomotor ataxy accompanied by frequent severe neuralgic attacks, for which he has long been in the habit of taking morphia. We arranged that he should make a series of comparative trials with chloral and morphia, endeavouring to ascertain if one has any and what advantage over the other. As this patient has cultivated his powers of observation to a very high degree, and is assisted by my friend Dr. Davidson, who sees him daily, I hope to obtain some very satisfactory reports, but have not as yet received any.

In another case where comparative trials have been made, the results are only partially satisfactory. The patient is a lady whom I have been attending with Sir William Jenner on account of frequent uterine hemorrhage dependent on epithelioma of the cervix uteri, and who suffers from almost incessant lumbar pains, which are relieved by opium, and still more relieved by a combination of opium and belladonna. But after either of these drugs, headache and loss of appetite are constantly observed; so on August 1 I began to try the chloral. It has been taken pretty constantly since, first in doses of thirty grains, and then of fifteen grains; and for some time one of these doses has been taken on alternate nights, one grain of opium and a quarter of a grain of extract of belladonna being taken on the intermediate nights. We have arrived at a sort of rule that thirty grains of chloral give about as much relief to pain as one grain of opium; that its effects are more immediate; that it is not so certainly followed by sleep, or by sleep of such long duration; but that on the succeeding day no kind of ill effect is observed, while after the opium there is invariably loss of appetite and more or less headache. On two occasions, when the dose of thirty grains was taken after large floodings, considerable excitement, restlessness, and incoherent talking, followed for about two hours; but this has not been observed since the bleeding has become more moderate.

This constitutes the whole of my personal experience of chloral; but I think I have seen enough to justify the hope that it will prove to be of valuable assistance in cases where we wish to obtain rapid relief to pain, and at the same time to lower the temperature of the body, while we are anxious to avoid the headache, sickness, or loss of appetite, and the rise of temperature which often counterbalance the good effects of opium.

Since writing the above, I have seen in the Berlin *Klinische Wochenschrift* of August 30 the report of a case where Langenbeck successfully used the chloral, quieting by it delirium following comminuted fracture of the humerus in a woman of intemperate habits. During the night following the injury, the patient became furiously maniacal, and notwithstanding many attempts to fix the limb, the upper fragment of the bone was being constantly forced against the soft parts, so that the whole arm became extensively ecchymosed, probably from rupture of a large vein. There was great reason to fear mortification, if the restlessness could not be subdued. Seven grains of opium, one grain of morphia, and brandy had been given without any result, when at 1.30 p.m. of the day after the injury Langenbeck gave sixty grains of chloral, and followed up the dose by thirty grains in three successive subcutaneous injections. Ten minutes after the first dose, the patient became quieter, although delirium continued. A quarter of an hour afterwards she was fast asleep, and continued to sleep quietly until the next morning, when she awoke free from delirium. Symptoms indicating the probability of relapse recurred in the evening, but thirty grains of chloral taken internally were followed by an excellent night. The patient made a good recovery, mortification of the integument being limited to the portion exposed to the jerking action of the upper fragment of the bone.

Langenbeck dwells particularly on the peaceful normal sleep, under which such aggravated circumstances, was so quickly induced by the chloral. He has since used it with good effect in subduing tetanic spasms, but the patient was still under treatment at the date of the last report which I have seen.

I have not used chloral by subcutaneous injection, fearing some local irritation; but recent experiments seem to prove that even chloroform is not irritating when injected under the skin, and there would be much less probability of chloral acting as a local irritant.

I have usually prescribed thirty grains of chloral with a drachm of syrup and ten drachms of water. With only an ounce of water the draught is rather too pungent. In Germany this dose is given with equal parts of syrup and water—half an ounce of each.

Chloral is very dear. The Germans say "a sleep costs a dollar." I paid £3 15s. for two ounces; and in July it was not easy to get it even at this price. But Mr. Squire tells me that he can now easily maintain an adequate supply.—*Medical Times and Gazette, Sept.* 18 *and Oct.* 2, 1869, *pp.* 346, 408.

110.—NOTE UPON APOMORPHIA AND CHLOROCODIDE.

By Dr. SAMUEL J. GEE, Assistant Physician to St. Bartholomew's Hospital.

Last May I read before the Clinical Society a short account of the therapeutical properties of apomorphia, a new base which had been discovered, the previous month, by Dr. Matthiessen. In No. 112 of the 'Proceedings of the Royal Society' there appeared two papers by Dr. Matthiessen and Mr. Wright upon the chemistry of apomorphia. In this place I wish to add a few therapeutical facts, gained by subsequent experience.

Every trial made has confirmed the statement that apomorphia is a most powerful emetic and contrastimulant. To the best of my knowledge apomorphia has never been administered in an emetic dose (namely $\frac{1}{10}$ grain subcutaneously or $\frac{1}{4}$ grain by the mouth) without producing speedy vomiting. On one occasion the vomiting occurred eighty seconds after the injection. But there is a drawback to the value of apomorphia used as an emetic, and that is the contrastimulant effect produced at the same time. Not that the latter effect always occurs, far from it; but sometimes it does occur to an extent such as to cause anxiety on the part of the person who has made the injection; the patient seems as if his muscular power were gone; the vascular system, however, does not appear to be depressed to an equal extent. The strength of the patient has nothing to do with the occurrence or not of the sedative effect; the strongest men sometimes suffer greatly, and the weakest sometimes escape. It is, perhaps, not surprising that an emetic of the activity of apomorphia should be depressing, and the more so since it is clearly an emetic which does not act by causing direct gastric irritation (sub-inflammation), but which acts as blows upon the head, foul sights or smells, or mere imaginations act. In some cases the production of a state of depression is even to be desired; emetics have often been used to that end.

As a contrastimulant apomorphia does not possess any special advantage, except that the alimentary canal is not inflamed, as is the event when antimony and veratria are given. But my experiments in this direction are very few, and this chiefly on account of the costliness of the drug. Owing to difficulties in the preparation of apomorphia, the produce does not weigh more than a tenth part of the morphia employed in the manufacture. The present price of morphia being five-and-twenty shillings an ounce, the value of apomorphia comes to be something beside which aurum potabile fades into insignificance. This does not matter when single tenths of a grain are used to produce vomiting: the expense arises when larger doses are frequently given by the mouth. Let us hope that the chemists will soon surmount these difficulties.

Apomopthia can be procured from codeia. An intermediate compound, chlorocodide, is formed.

Experiments show that the properties of chlorocodide and of codeia are identical, salivation and dilatation of the pupils being the symptoms most easily produced; larger doses causing extreme restlessness, and very large doses proving fatal after a state of mixed paralysis and spasm both tonic and clonic; consciousness being unaffected. The only property of chlorocodide that holds out any promise of being useful in medicine is the extreme bitterness of the base, almost equal to the bitterness of strychnia, while the dose of chlorocodide which is required to produce tetanus in the human being must be enormous (if we may argue from the cat) compared with the dose of strychnia required. A quarter of a grain of chlorocodide taken by the mouth causes an uncommon sense of tonicity in the abdomen. Quina, which is so often given as a stomachic, is a much less intense bitter than chlorocodide, and tends to produce fullness and aching of the head, which chlorocodide does not.—*St. Bartholomew's Hospital Reports*, Vol. V., 1869, *p.* 215.

111.—THE COMBINATION OF CHLOROFORM WITH OPIATES FOR THE RELIEF OF PAIN.

By Dr. William Marshall, Mortlake, Surrey.

Two or three years ago, in the middle of the night, I was seized with a severe attack of colic. Having nothing at hand likely to give relief but chloroform and compound tincture of camphor (paregoric), I made a mixture of these and took it. Shortly before, in a back number of "Braithwaite's Retrospect," I had read several cases in which very large doses of chloroform had been given internally; I had no hesitation, therefore, in taking twenty drops, and a teaspoonful of paregoric, in water. I am very subject to colic, and have taken everything that I have seen or heard recommended for it, and can, therefore, speak somewhat authoritatively on the subject. Nothing that I had ever tried could be compared in effect with this dose. There was immediately a secse of grateful warmth in the stomach, which seemed to radiate thence through the whole abdomen, soothing the painful parts. I then fell asleep, certainly within two or three minutes after taking the dose. In about two hours I awoke, and not being quite free from pain, took a second dose, fell asleep directly after, and slept soundly until morning, when I awoke free from pain, and without any headache, which I probably should have had, had I taken the paregoric alone. Since then I have frequently experienced the same beneficial effects, not only in myself, but also in many patients. I have prescribed it in all kinds of severe pain, when it was necessary to give immediate relief; and with such success that I would urge the readers of this Journal to give it a trial on the first opportunity.

The medicine sold under the name of "chlorodyne" is a compound of chloroform and morphia, &c., but is not nearly so effectual. In twenty minims of it there are, I believe, only two minims and a-half of chloroform, whereas I find ten the smallest quantity that will produce an appreciable effect. I have given as much as one drachm in a single dose, but ten to twenty minims—not drops—is in most cases an effectual and safe dose. With the chloroform, one or two drachms of compound tincture of camphor should be prescribed if the pain be moderate in severity, or ten, twenty, or forty minims of "Battley," or sol. mur. morphiæ, if more severe. This combination generally relieves pain, and induces sleep *within a few minutes*, and its effects are more lasting than those of an opiate alone, and without its disagreeable after effects. It ought to be given in some thickish solution, such as mucilage, otherwise the chloroform will fall to the bottom.

The following cases will illustrate its action:—

Three days after her confinement, Mrs. P. was seized with violent pain in the abdomen, accompanied by sickness. The pain was felt principally in the region of the gall bladder, but extended over the whole abdomen. It yielded, after some hours, to large doses of opium, &c. Similar attacks recurred frequently for two or three months, and were always treated with opiates, purgatives, the application of mustard plasters, &c., which gave relief only after several hours. It was at this time that I became acquainted with the virtues of the combination of chloroform and opium, and I tried it in the next attack. About 5 o'clock one morning she was awakened by the return of the pain. She applied mustard, took brandy and water, but the pain gradually became worse, and at 11 o'clock, when I first saw her, was very severe. It came on in the epigastrium, extended through to the back, up the spine to the occiput, down the arms to the fingers, the muscles of the arm were seized with cramp, the fingers being flexed into the palm, and the forearm upon the arm; the face pale, anxious, and covered with perspiration. Similar paroxysms recurred every few minutes. I immediately administered a dose containing 30 minims of sulphuric ether, 20 of chloroform, and 2 drachms of compound tincture of camphor, in an ounce of mucilage. There was *no return of pain* after taking the draught; she fell asleep and slept soundly for some hours, awakening free from pain, but very sick.

The effect of the remedy was most marked and satisfactory. In previous attacks relief was procured only after repeated large doses of opium, and many hours of suffering, but in this attack, which was much more severe than any of the others, it was obtained after a single dose of the chloroform mixture. Relief came so instantaneously as to give rise to the suspicion that the gall stone (if it was a gall stone) had escaped from the duct just as the medicine was taken, and that the attack terminated naturally. No gall stones, however, were ever seen in the motions, nor was she at any time jaundiced, so that the diagnosis was not absolutely certain. I had no opportunity of trying the remedy in another attack, as she went to the coast after recovering; she there had similar, but milder attacks, for some months, after which they disappeared.

Miss N., aged 21, after undergoing considerable fatigue and anxiety, while nursing a sick relative, began to suffer from frontal neuralgia. The attacks were very frequent, and came on after any excitement or extra exertion; and daily increased in severity. One evening she was seized with an attack much more severe than any of the previous ones. The pain was in the eye, and in the track of the supraorbital nerve up the forehead, which was very tender to the touch, and was characterised as darting, screwing, &c. The suffering certainly seemed to be very great. Before I saw her she had used various local applications, and among them aconite, but they failed to give any relief. Deeming it proper to give immediate relief, if possible, I administered 20 minims of chloroform and 30 minims of sol. mur. morphiæ, suspended in an ounce of mucilage. A few minutes after taking it she fell asleep, slept soundly for twelve hours, awakening then quite free from pain, and without any of that distress which probably would have been felt after a similar dose of morphia alone. Under tonic treatment the attacks rapidly diminished in frequency and severity, and finally disappeared.

During the prevalence of cholera in London in 1867, Mrs B. was seized during the night with vomiting, purging, cramps in the bowels and legs, &c. When seen by me some hours after the commencement of the attacks, the sickness had stopped, the purging had diminished, but the cramps were more severe. The eyes were shrunken, the skin, however, was warm. I ordered hot bottles to the feet, a mustard poultice to be applied over the bowels, and gave her 20 minims of chloroform, and 15 minims sol. mur. morphiæ. Before the hot bottles and the mustard poultice were ready, she fell asleep, slept five or six hours, awoke free from pain, and before evening was quite well.

Late one evening I was called to see Mrs. A., the wife of an innkeeper. She had been quite well during the early part of the day, but in the afternoon severe pains in the abdomen had come on, and shortly afterwards she became delirious. I found her sitting up in bed, with one hand covering her eyes, and the other extended, screaming to the servant, "Take away those snakes; there they are, crawling up the bed," &c., &c. Every now and then she stopped in the midst of her delirium to complain of violent pain in the abdomen. The pulse was rapid and feeble, the skin moist and cool, the tongue slightly coated. I ordered her 40 minims of liq. opii sed., and 20 of chloroform, to be taken directly. Next day she was nearly quite well. The draught she said, relieved her pain directly, so that she was able to fall asleep, and she is now quite well, only feeling a little heavy and exhausted.

Any one unacquainted with the previous history of this case would have imagined that he had to do with a genuine case of delirium tremens, and would have expected that she would have been sleepless and delirious for three or four days at least. But I had often attended Mrs. A. in similar attacks, and knew that if I could relieve the pain, the delirium would disappear. To use the words of her husband on seeing me, "It is only one of her old attacks, if you will give her something to put away the pain she will fall asleep and waken all right." She is in the habit of sipping all day long small quantities of raw gin; she is never intoxicated; she eats very little, the sight of food immediately causing a loathing of it; and "if it were not for the small quantities of gin she takes, she does not know how she could exist;" she retches violently every morning on getting up; she never enjoys good health, always feeling "low." When any sudden illness comes, such as a sharp attack and pain in the abdomen, she becomes delirious, and this spurious delirium tremens lasts only as long as the pain.

I have selected these cases out of a great many others, to illustrate the successful action of this combination, but I think it fair to add that it is not always so successful. If given to a person in pain who is very sick, it is immediately rejected, and of course gives no relief. It should not be given where there is any inflammation, or even congestion of the stomach. In severe "bilious attacks" it only aggravates the existing congestion of the stomach, &c., and makes matters worse. But, even in other cases where there is every reason to anticipate great relief from its administration, it sometimes fails without my being able to say exactly why.—*Glasgow Medical Journal, May*, 1869, *p.* 351.

112.—SUBSTITUTE FOR CHLORODYNE.

Mr. Edward M'Inall, a pharmaceutist of Philadelphia, recommends the following as a substitute for the chlorodyne of J. Collis Brown.

Sulphate of morphia, gr. lxiv.
Alcohol (ninty-five per cent.,) f. oz. ij.
Purified chloroform, f. oz. vj.
Sulphuric acid, q. s.
Extract of cannabis indica, (Allen's) dr. ss.
Oleo-resin of capsicum, gtts. xij.
Hydrocyanic acid, (Scheele's,) gtts. xcvj.

Shake together the sulphate of morphia, alcohol and chloroform, then add the sulphuric acid, shake well until it becomes clear, then add the oleo-resin of capsicum, extract of cannabis and hydrocyanic acid.

This forms a clear dark green liquid, possessing the acrid taste of capsicum, and the odour of chloroform. A drachm contains about a grain of the sulphate of morphia, and the dose is given at from fifteen to thirty drops, (minims.)—*New York Journal of Medicine, Sept.* 1868, *p.* 531.

113.—ON THE USE OF ANTISEPTIC CERE-CLOTH FOR COVERING WOUNDS.

By Edward Lund, Esq., Lecturer on Anatomy, and one of the Surgeons to the Manchester Royal Infirmary.

[The following paper on what its author has called "Antiseptic cere-cloth," was read before the Surgical Section of the British Medical Association, at the late meeting at Leeds.]

It is, as the name implies, cloth of thin calico saturated with waxy matter in the form of solid paraffin, to which are added a little oil and wax, with carbolic acid in certain proportions. It possesses this double property, that, when placed over a wound, ulcer, or the opening of an abscess, it not only serves to exclude the air as an impervious dressing to the part, but it constantly emits from its surface the vapour of carbolic acid, as it is disengaged by the heat of the body, and so forms an antiseptic atmosphere around the wound.

It will be found an economical and ready substitute for the antiseptic lac plaster of Professor Lister, by which he has obtained wonderful results in the management of severe lacerated wounds, abscesses, and the like; and, in the particular method of applying the cere-cloth, I have endeavoured as far as possible to carry out those minute and careful directions which Professor Lister has given, as the only means by which to secure for the "antiseptic method" a fair chance of success. I will not occupy time by entering upon the disputed question, how it is that the antiseptic method really acts—whether *chemically*, upon the tissues and fluids of the part; or *physiologically*, if I may so say, by arresting the development of those "septic germs" and "living organisms" which by their presence, under certain conditions, seem to determine the existence of suppurative inflammation on the surface of wounds, and thus interfere, more or less, with the healing processes; for, quite independently of this, it is very desirable, especially in hospital practice, where surgical cases are crowded together, to prevent the putrescence of the secretions from wounds, and the fœtid tainted atmosphere which they engender; so that, merely on the score of cleanliness and neatness, it must be admitted that the antiseptic method has much to recommend it.

In the preparation of the cere-cloth, solid paraffin is used as the basis of the composition with which the cloth is saturated. It has these advantages: that paraffin in itself is not at all irritating to the skin; and, when made into cere-cloth, it adapts itself easily to the surface to which it is applied, moulding itself to any peculiarities of form by the warmth and gentle pressure of the hand, at the same time that it is in no way adhesive, as ordinary ointments or cerates would be; and, therefore, when it is required to be removed, it can be raised or slid off from the surface with the least possible disturbance, and a fresh piece placed in its stead. This mixture of solid paraffin, oil, wax, and carbolic acid, in the proportions which I am about to mention, does not liquefy much below 190° Fahr.; so that it retains its solid form at the ordinary temperature of the body, the vapour only of the carbolic acid being slowly dissipated. It is likewise an inexpensive material—a matter of no small importance in public practice. I am not prepared to state its exact cost; but I am sure, if made in large quantities, it will be found to be a very cheap form of surgical dressing. It can be kept in the solid state, protected from the air, for a great length of time; it can then be warmed and liquefied as required. The calico saturated with it, by simply drawing a portion through it while in a fluid state, congeals immediately, and is ready for use; or it may be made, in pieces of any length or width, by rolling the calico over cylinders containing cold water as fast as it has taken up the cerate, as I have shown by a machine in the museum collection of new instruments at our present meeting.

To illustrate how effectually the vapour of carbolic acid, thrown off from this cere-cloth at ordinary temperatures, will prevent putrefaction, I placed some pieces of fresh meat in several wire cages of a cubical form, covering each with the cere-cloth, and fixing it loosely round by an India-rubber band. This was done on the 12th of June last, and again on the 23rd of the same month; and, on opening one of the packets to-day, it will be seen that the piece of meat has remained unchanged, as far as putrefaction is concerned; although, from the time it has been kept in a warm room, it is quite dry and hard. To prove that this was due to the carbolic acid vapour, and not to mere exclusion of the air, on June 12th I also placed a piece of fresh meat in a cage, and covered it over in the same way with calico steeped in exactly the same composition as far as the paraffin, oil, and wax were concerned, but *without* carbolic acid; and in less than nine days the meat was quite putrid and moist from decomposition, and I was compelled to throw it away. This has suggested to me that possibly this cere-cloth might be found very useful for the purpose of wrapping up pathological specimens to preserve their colour and freshness for future microscopical examination; for, if it be the vapour of the acid which produces the result, this alone could not occasion any serious change in the structure or chemical composition of the tissues.

In using this cere-cloth for dressing wounds, although it is important to bear in mind that the exact size and quantity to be employed must vary with the extent and depth of the wound to be covered, and the time which is to elapse before its re-application, yet it is always prudent not to use carbolic acid at a greater strength or for a longer period than is really needed to prevent or check putrefactive changes. As soon as these have ceased, or, after a reasonable time, have not manifested themselves by the presence of fœtor, the weaker the carbolic preparation the better; for there can be no doubt that carbolic acid is an irritant, and in some constitutions a very powerful irritant: hence it becomes a cause of protracted suppuration by over-stimulation. How to adjust the exact strength of the application in any given case is a matter of great difficulty; and it is doubtless one reason why many surgeons, who have given carbolic acid a trial with the object of averting putrefaction, have ceased to use it, thinking that at times it seemed to do more harm than good.

To obviate these difficulties, I make the cere-cloth of three degrees of strength, as it contains one-fourth, one-sixth, or one-eighth of carbolic acid. The strongest quality is needed in the management of the early stages of a wound; the others are more useful while cicatrisation is going on.

The exact formulæ for the cerates with which the calico is saturated are as follows; the form in each case being intended for twelve fluid ounces of the cerate in the liquid state—enough to spread about one square yard and a half of the cere-cloth. The quantities which I give are to be measured by bulk, and not by weight—that is, for the carbolic acid and the oil, as well as the paraffin and the wax which have been previously liquefied; for I find that in this way I get a greater uniformity in the composition.

No. 4, or the strongest form of the cerate, is composed of pure carbolic acid, Calvert's, *liquefied*, f. ℥iii; olive oil (coloured red with alkanet-root, to distinguish the cerate), f. ℥iss; yellow wax, *liquefied*, f. ℥iss; paraffin, *liquefied*, f. ℥vi. Mix.

No. 6, the next in strength, and of a yellow colour, is composed of pure carbolic acid, f. ℥ij; olive oil, f. ℥iiss; yellow wax, f. ℥iiss; paraffin, f. ℥v. Mix.

No. 8, the weakest, which should be nearly white, is composed of pure carbolic acid, f. ℥iss; olive oil, f. ℥ij, f. ʒvi; white wax, f. ℥i, f. ʒvi; paraffin, f. ℥vii. Mix.

I trust that these few remarks will induce some of the members of the Association to make trial of this material; and that its use may serve to advance the general adoption of those principles in the antiseptic method of treating wounds which have been so ably and perseveringly advocated by Professor Lister. —*British Medical Journal, Sept.* 4, 1869, *p.* 267.

114.—THE CHOLAGOGUE ACTION OF MERCURY.

By Dr. J. Hughes Bennett, Reporter of Committee.

[The following are the conclusions regarding the cholagogue action of mercury arrived at by the committee of the British Medical Association appointed to experiment on this subject. We are unable to give the details of the numerous experiments made, but they apparently quite exhaust the subject, and test it in all its bearings. Of course the experiments were made on dogs, and their value depends upon the fact that its action upon these animals is the same as upon the human subject. We give the results of experiments with calomel on one of the dogs. The results were very much alike in all.]

During the five days on which calomel or blue pill was administered, the mean amount of bile secreted was diminished to 35·46 *grammes*, or nearly one half of what it was in the period preceding the administration of the mercury; although nearly as much food was consumed during as before the administration of the drug. [The mean amount of bile-solids was 1·812 *grammes*, of bile-salts 0·436 *grammes*. The average amounts for each *kilogramme* of dog were, fluid-bile, 1·93 *grammes;* bile-solids, 0·099; bile-salts, 0·023; for each 100 *grammes* of dry food, fluid bile, 24·18 *grammes;* bile-solids, 1·23; bile-salts, 0·29.] Moreover, during the second period, the average amount of bile secreted was, on the whole, greater on the days when no mercury was given than on the other days. No purgation or any other signs of specific action were produced by the mercury; but shortly after its first administration the strength of the animal began to decline. Sores, produced by the pressure of the apparatus, formed upon the back, in consequence of which the observations were interrupted on November 15th. The appetite failed, and the animal became so much emaciated that it was killed on the 28th of November.

It is evident that in this case the mercury diminished the biliary secretion; and it is remarkable that it did so without impairing the appetite, and without producing purgation.

The foregoing observations seem to us clearly to shew that blue pill, calomel, and corrosive sublimate, when given to dogs in either small, gradually augmented, or in large doses, do not increase the biliary secretion; they do not even influence it so long as neither purgation nor impairment of health are produced, but they diminish it as soon as they produce either or both. It may be argued that, although we have proved this regarding dogs, it does not follow that on man these drugs will have the same action. It must be admitted that some animals are altogether insensible to remedies which produce powerful effects on others; that different doses are often requisite to occasion similar results; and that there may be peculiarities so very decided as to render it impossible to infer what will be the action of a remedy on one animal from its influence upon another. But have we any reason to conclude that in the present instance there exists such difference in the action of mercury as to prevent any inference being drawn from the dog regarding man? All the facts with which we are acquainted show that it is legitimate to infer that the action of mercury ought to be regarded as similar in both cases. We have demonstrated that, as regards its action upon the salivary glands, mouth, intestine, appetite, and general nutrition, the influence of mercury is the same. We therefore infer that it is in the highest degree probable that its action on the hepatic secretion will also be the same. The only difference that there seems to be between the dog and man as regards the action of mercury, consists in the fact that in the dog larger doses are generally required to produce the same effects as those observed in man. But even here it may be argued that more marked results are required to satisfy the observer, and hence the greater dose necessary. These circumstances, therefore cannot be held as affecting the conclusion at which we have arrived.

We have not deemed it worth our while to experiment upon any other animal, for we are unable to see how such experiments could materially strengthen our position. Even though we had shewn that mercury, when given to a rabbit, cat, pig, donkey, or horse, diminishes the biliary secretion, it might still be said that this does not apply to man. But there are several special reasons which render experiments on these animals either impracticable or less reliable than those on the dog. Bidder and

Schmidt failed to establish biliary fistulæ in cats; we therefore thought it not worth our while to spend money and time in making the attempt. Horses and donkeys are too unwieldly for the purpose, and have no gall-bladders, a peculiarity which in all probability would render it impossible to establish biliary fistulæ in them. In pigs, the hepatic secretion differs from that of man, inasmuch as it contains hyocholic acid, and, according to Strecker, no sulphur. It might, therefore, not unfairly be objected to any inferences from experiments on pigs, that inasmuch as the porcine differs from the human hepatic secretion, it could not be held as altogether probable that mercury would influence both in the same way. Everything seems to show that the animals used by the Committee are those best suited for the observations they have made. In addition to the therapeutical facts previously mentioned, which, after all, are the most important, there are these, that the qualitative composition of canine is the same as that of human bile, and that the dog, like man, can be fed on a flesh, vegetable, or mixed diet. In this respect dogs are superior to most other animals, even to the Quadrumana, which though in conformation most resembling man, are vegetable feeders. So far, therefore, as direct experiment and exact observations are capable of determining the influence of mercury upon the biliary secretion, the Committee have no doubt that the dog is superior to the animals above mentioned.

But it may be supposed that mercurials possess some specific power of exciting the biliary secretion by acting on the orifice of the common bile-duct, and so stimulating the secretion through the nerves which connect it with the liver, just as pyrethrum and vinegar stimulate the salivary glands when they are applied to the orifices of the salivary ducts. It might also be objected that, inasmuch as in our experiments the common bile-duct had been divided, the nerves alluded to might have been so injured that stimulation of the orifice of the common bile-duct could no longer excite the secretion. It remains to be shown, however, that mercurials do specially excite the orifice of the bile-duct. It is not probable, at any rate, that their influence on the biliary secretion was, in the cases of dogs 6, 7, and 8, prevented by division of the hepatic nerves. In these experiments the common bile-duct was simply divided with as little injury to the neighbouring parts as possible (in previous experiments a portion of the bile-duct was removed), and these animals did not suffer in the least from the shock after the operation; so that nervous injury could not have been extensive. Moreover, in the case of dog 7, the parts around the common bile-duct were dissected after death, and the nerves proceeding from the solar plexus to the liver were found at some distance from the duct, and had apparently suffered no injury at the place where it had been divided. The Committee, therefore, do not attach any value to this objection.

But some may say that, although we have proved that mercury diminishes the biliary secretion in dogs, and that in man its action will in all probability be the same, yet our experiments have been performed on animals in a state of health; and that, had they been made on dogs with diseases such as those in which mercury has been *supposed* to increase the hepatic secretion, it would possibly, in the case of such dogs, have been increased. With such an hypothesis we need not seriously occupy ourselves until the objectors *prove* that, in any case whatever, mercury can increase the biliary secretion in man.

We have been unable to discover any facts brought to light in this or any other age which prove that mercury stimulates the biliary secretion. So far as we can make out, the notion that it does so originates in some vague statement made by Paracelsus, or the authors of his time, as to the good effects of mercury in what he has called "icteritia." But we repeat, not only do we not know how such a notion has arisen, but we are ignorant how to make direct observations on the subject in man. We have already stated that such observations are, in the present state of physiological chemistry, impossible. We do not deny the possibility of mercury being useful in some diseases of the liver. We simply say that the notion of its doing good by increasing the biliary secretion is untenable.—*British Medical Journal, May* 8, 1869, *p.* 415.

115.—THE ACTION OF PODOPHYLLINE AND TARAXACUM UPON THE LIVER.

By Dr. J. Hughes Bennett, Reporter of Committee.

[The following are the results of the experiments of the Committee of the British Medical Association, appointed to investigate the cholagogue action of mercury upon the action of podophylline and taraxacum upon the liver.]

1. Doses of podophylline, varying from 2 to 8 grains, when given to dogs, diminished the solid constituents of the bile, whether they produced purgation or not.

2. Doses which produced purgation lessened both the fluid and solid constituents.

3. During an attack of dysentery, both the fluid and solid constituents of the bile were greatly lowered.

4. Doses of the solid extract of taraxacum, varying from 60 to 240 grains, affected neither the biliary secretion, the bowels, nor the general health of the animal.—*British Medical Journal, May* 8, 1869, *p.* 419.

116.—RESEARCHES INTO THE ACTION OF MERCURY, PODOPHYLLINE, AND TARAXACUM ON THE BILIARY SECRETION, ETC.

[The following article is a review of Dr. Bennett's pamphlet on this subject, by one of the Editors of the Practitioner.]

An investigation of the action or want of action of mercury and taraxacum in influencing secretion of bile, is something like an inquiry by Dr. Colenso into the authenticity of the Book of Numbers. It is something to make the cheeks of many and many an old-fashioned practitioner turn pale, to shake the whole foundation of his therapeutical creed, to symbolise the end of all things at least as regards drugs. Podophylline is but a juvenile. That podophylline, albeit lauded in no measured terms for its flow-of-bile-producing qualities, should prove a traitor, was a blow which some little exertion of moral courage could enable the believer to survive; but that any doubt should be felt about the capabilities of calomel and blue pill, and extractum taraxaci, in "acting upon the liver," must have conveyed a shock in various quarters, from which we should imagine there are many still suffering. The investigation, however, has taken place. It has been conducted by men of proved ability. Its results are here placed before the reader in very intelligible form, and we confess, for our part, that at these results we are not one whit surprised. The experiments clearly show, what careful observation in practice must have taught the unprejudiced, that faith in the cholagogue action of these drugs has been misplaced, that our trust in blue pill from this particular point of view has been as ill-judged as it was strong, and that the days are rapidly drawing to a close when a practitioner of medicine will be able without subjecting himself to ridicule to inform his patient that his complaint is "all liver," and requires sundry doses of mercury, podophylline, or taraxacum.

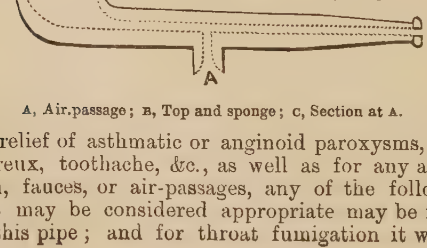
In the experiments adopted by the committee, dogs were employed. The fundus of the gall-bladder was attached to the abdominal wall, and a fistulous opening made in it through which the whole of the bile secreted for at least twenty-four hours at a time was collected. During the five days on which mercury was given the quantity of bile secreted was diminished to nearly a half of what it was in the period preceding the administration of that drug. During the second period, the average amount of bile secreted was on the whole greater on the days when no mercury was given than on the other days.

Dr. Bennett comes to the conclusion that mercury, when administered so as to impair the general nutrition, lessens the biliary secretion; that given to dogs in either small, gradually augmented, or in large doses, it does not increase the biliary secretion. He finds that it does not influence it at all so long as neither purgation nor impairment of health are produced.

As regards the other drugs employed, doses of podophylline varying from two to eight grains, when given to dogs, diminished the solid constituents of the bile whether they produced purgation or not. Doses which produced purgation lessened both the fluid and solid constituents. Doses of the solid extract of taraxacum, varying from 60 to 240 grains, affected neither the biliary secretion, the bowels, nor the general health of the animal.—*Practitioner, June* 1869, *p.* 355.

117.—MR. BIRD'S NEW INHALING PIPE.

Mr. James Bird, surgeon of Seymour-street, Connaught-square, has recently invented a novel little instrument for inhaling the vapour or smoke of various medicinal substances and preparations, which, from the simplicity of its construction and the facility with which it may be applied to the administration of a number of important remedies by the air-passages, promises great advantages, and commends itself at a glance to most favourable notice. The use of Mr. Bird's "inhaling pipe" is likely to lead to a great extension of the practice of inhalation, and to important therapeutical improvements; and we understand that it is in use among the out-patients of the Victoria-park Hospital, and the report thus far is "decidedly good." It is also undergoing a very satisfactory trial at the Consumption Hospital at Brompton. The diagram shows the form and configuration of the pipe, and also the method of using it.



A, Air.passage; B, Top and sponge; C, Section at A.

For the relief of asthmatic or anginoid paroxysms, neuralgia, tic douloureux, toothache, &c., as well as for any affection of the mouth, fauces, or air-passages, any of the following formulæ that may be considered appropriate may be inhaled by means of this pipe; and for throat fumigation it will only be necessary to remove the felt sponge, and any suitable preparation of mercury or iodine may be smoked over either ignited tobacco, hemlock, or stramonium, with the greatest facility, and the fumigation continued far more persistently than by any other of the usual methods. Many of the formulæ given below have been tried very successfully, and they are suggestive of many other combinations that will be found equally or even more effective as time and experience may hereafter dictate:—

℞. Chloroformi ♏x., sp. vini rectif. ♏xxx. M.
℞. Chloroformi ♏v. ad ♏x., sp. camphoræ ♏xxx. M.
℞. Chloroformi ♏v. ad ♏x., tinct. pyrethri ♏xxx. M.
℞. Chloroformi ♏v. ad ♏x., tinct. tolu ♏xx. M.
℞. Chloroformi ♏v. ad ♏x. sp. camphoræ, tinct. pyrethri, āā ♏xv. M.
℞. Chloroformi ♏v. ad ♏x. tinct. opii ♏x. ad ♏xx. M.
℞. Acidi carbolici ♏j. ad ♏ii., sp. vini rect. ad ♏xx. M.
℞. Chloroformi ♏v., tinct. daturæ tatulæ ♏xx. M.
℞. Chlorodynii ♏x. ad ♏xx.
℞. Chloroformi ♏v., tinct. humuli ♏xxx. M.
℞. Creosoti ♏iij. ad ♏viij., sp. vini rect. ♏xx. M.
℞. Acidi carbolici ♏j ad ♏ij., acidi acet. glac. ♏iv., sp. vini rect. ♏xx. M.

Each of the above formulæ represents a medium dose for an adult for one period of inhalation, which may be renewed at stated intervals as deemed necessary.

We shall revert to this subject from time to time, as the administration of remedies by the air-passages is very suggestive. In fact, there is as great a number and variety of pharmaceutical and chemical preparations suitable for inhalation as there are disorders for which they are peculiarly applicable. Thus there is a vast field for medical observation, research, and practice, which has hitherto been but sparingly and unsatisfactorily investigated for the want of an inexpensive, convenient and efficient instrument, such as Mr. Bird's inhaling pipe.—*Med. Times and Gaz.*, *June* 19, 1869, *p.* 672.

118.—ON THE MEDICINAL USE OF PHOSPHORUS AND ITS COMPOUNDS.

By Dr. John C. Thorowgood, Senior Assistant Physician to the Hospital for Diseases of the Chest, Victoria Park.

[Phosphorus since its discovery, exactly 200 years ago, has been occasionally prescribed as a stimulant to the nervous centres. It has been used in the latter stages of typhus fever, in epilepsy, paralysis, melancholia, amaurosis, &c., occurring in debilitated subjects.]

The well-known fact that in cases where an unusual degree of wear and tear of the nervous system is being sustained it is common to find an excess of phosphatic matter excreted in the urine, while the individual becomes increasingly weak, nervous, and irritable, appears to show that exhaustion of nervous force is in some way connected with a rapid oxidation and excretion of phosphorus from the system.

Considering these points, we can see that there is reason in seeking to administer phosphorus as an internal medicine where we have reason to suspect that the nutrition of nervous matter may be failing from a loss of its right proportion of this very essential ingredient.

We give phosphorus for its restorative action over weak nerve, just as we give iron to nourish and restore blood that is weak and poor from lack of this constituent. A difficulty and objection in the medicinal use of phosphorus has hitherto been the finding of an eligible and convenient preparation in which to enable the stomach to bear and digest the drug; for when the phosphorus is given dissolved in oil, or in ether, it forms a very nauseous mixture, which after a while appears to heat and irritate the stomach. Some practitioners persuade themselves that they are nourishing the brain and restoring the nerves if they administer phosphoric acid and various of the phosphatic syrups, now so much in vogue, to their patients. Few will deny that often much good is done by these preparations of oxidised phosphorus, but it seems doubtful if the restorative action of phosphorus, thus given in a state of complete oxidation, over nerve tissue is equal to its action when given in a lower degree of oxidation, either as pure phosphorus itself, or else combined in the form of a hypophosphite; a salt which contains phosphorus at so low a degree of oxidation that it will ignite and burn at a moderate heat just as pure phosphorus would do.

Solid phosphorus, given in as small a dose as 1½ grain, acts as a poison, death seeming to take place in a gradual and painless way, with perfect retention of consciousness There may be some vomiting, and the substances ejected appear luminous in the dark, as also does the stomach itself after death, when cut open in a dark place; but it is rare to find any marked inflammation of this organ; in the case of a bird poisoned by eating several grains of phosphorus, I could find scarcely a trace of inflammation anywhere in the digestive tract. In a case recorded by Casper, where a dose of three grains of phosphorus proved fatal to a lady in twelve hours, the body after death presented the extraordinary phenomenon of luminous vapour issuing from each of its outlets.

Analysis of the various tissues of animals poisoned by phosphorus has demonstrated the presence of phosphoric acid in unusual amount: this arises from the oxidation of the phosphorus in the body. Phosphoric acid is also increased in the urine of those who have taken any preparation of phosphorus. The action of phosphorus as a poison appears not to be due to any direct action on the nervous system, but to its preventing the assimilation of oxygen by the constituents of the blood; by thus checking oxidation it may cause the fatty degeneration of the liver so often met with in those who have been poisoned by phosphorus, and which is doubtless connected with the symptoms of severe icterus often seen in the patients before death.

For medicinal use there are solutions of phosphorus in ether and also in almond oil. One fluid ounce of ether will dissolve, after long digestion, 4 grains of phosphorus, and the oily solution is in the same proportion. The most recent formula for the phosphorated oil is that of the French Codex, for which I am indebted to Mr. C. Savory; it is as follows:—

Form from French Codex for Phosphorated Oil.—Phosphorus, 2 grammes. Oil of almonds, 100 grammes.

The oil is gently warmed with the phosphorus for about twenty minutes in a flask that is almost closed to exclude the air; when cool the oil is decanted off from the undissolved phosphorus.

The oil, thus prepared, may be given in emulsion, or with cod-liver oil in a dose of from 3 to 8 drops, like the phosphorated oil of the Prussian Pharmacopœia, and is hardly less nauseous in flavour.

Another very useful preparation of phosphorus is a pill, made by melting finely-divided phosphorus with fat and then covering the pill with an impermeable coating.

Pills that I have seen and used, made by Messrs. Savory and Moore, contain $\frac{1}{40}$th of a grain of phosphorus in each pill. Both Dr. Radcliffe and Dr. Althaus speak favourably of the good effect of phosphorus, given thus in very small doses, as a valuable tonic in many chronic nervous maladies.

Some years ago the phosphorated oil was tried by Dr. Hughes Bennett in several cases of paralysis; but though the dose was a full one, the medicine had not much perceptible effect beyond causing a great increase in the quantity of phosphoric acid excreted by the urine.

A further, and more recent, trial of phosphorated oil has been instituted by Delpech, of Paris, in cases of paralysis, and he has found reason to speak well of phosphorus as a useful medicine in these cases; it seems to invigorate the system and so act as a tonic. It was thus that Dr. Anstie found phosphorus to act beneficially as a tonic in cases of epilepsy; over the actual fits the drug did not seem to have much power, but it relieved the languor and depression felt in the intervals of the fit in a very satisfactory way.

M. Tavignot, in France, has long been in the habit of using phosphorus in the form of a pill, containing $\frac{1}{70}$th of a grain, as a remedy in nervous, chlorotic, and strumous affections. In some neurotic and paralytic affections of the muscles of the eyeball, and of the lachrymal nerve, M. Tavignot has used liniments of phosphorated oil with advantage; and, dropped into the eye, this oil is asserted after some months' use to have a solvent action on cataract.

In numerous cases of chronic pulmonary disease, in which there seemed no special reason to think that tubercles were actually present, I have administered phosphorus in the form of the hypophosphite of potash with excellent results. This hypophosphite of potash is a deliquescent salt, very rich in phosphorus, taking fire and burning at a very low temperature, and possessing a resolving and liquefacient action so strongly marked that I have known great mischief to result from its incautious administration to persons affected with tubercular deposit in the lung. A highly intelligent surgeon near London told me some time ago that he feared ever again to give the hypophosphite of *soda* to one who had tubercular disease, for he was sure that in the instance of a medical man, for whom he had prescribed this salt, it caused a rapid softening of the tubercular deposit. I said I could believe this easily if he had given his friend the hypophosphite of *potash*, but I doubted its happening when the soda salt was used in a moderate dose. To make certain on this important point we went to the surgery, and the bottle containing the remainder of the salt was hunted out from the obscurity to which it had been consigned: it proved to be a bottle of good and genuine hypophosphite of *potash* as I had suspected.

In the case of a patient under my care at the Victoria Park Hospital for obstinate chronic bronchitis with thick fetid expectoration and tendency to congestion of the lung, 5 grains of the hypophosphite of potash in camphor water effected a complete cure without any other medication whatever. To test the effect of the treatment I stopped the medicine during one week, and the effect was a marked increase of cough and thick fœtid expectoration; on returning again to the mixture these symptoms were entirely removed and the patient was dismissed cured.

In other cases of chronic bronchitis, remaining after the subsidence of an acute attack of the disease, and not, as a rule, complicated by the presence of emphysema of the lung, I have given the hypophosphite of potash in camphor water with much advantage.

As a gradual tonic and restorer of failing nerve force I prefer the hypophosphite of soda or of lime to the potash salt, and either of these salts appears to me to answer all the purposes of pure phosphorus as an internal remedy, while at the same time they are more manageable and agreeable medicines. In cases of nervous depression and torpor, with at times shooting neuralgic pains; or, in other cases, numbness and deadness of the limbs, as from feeble circulation, the hypophosphites prove useful, and the lime or soda salt can be given according to the way in which the stomach may seem to bear the one better than the other. When anæmia is present, the citrate of iron can be added to the hypophosphite of soda, or else the syrup of the hypophosphite of iron, or of iron with quinine, can be employed; and either of these syrups will prove an active tonic, removing neuralgic pains, chest oppression, and languor of circulation in a very evident way.

In cases of pure hypochondriasis, with tendency to true melancholia, I have used the hypophosphite of soda in full doses, but have not found it to exercise the least effect over this form of depression, while from very small doses of strychnine the patient obtained most unmistakeable relief. I have noted in other cases that, when a depressed state of system was connected with any obvious form of dyspepsia, the hypophosphites were of very little benefit. Among other cases in which I have tried phosphorus in the form of either the hypophosphite of lime or soda, I may enumerate two cases of psoriasis of the skin in which the action of the drug was strikingly beneficial. I have tried the hypophosphite of lime in a very obstinate case of acne, but here it failed to relieve, though subsequently the sulphur water of Harrogate proved eminently useful. In numerous cases of phthisis pulmonalis I have administered various hypophosphites, with a view of increasing and restoring wasted nerve force; in an exhausted state of which I believe many true cases of true tuberculosis to have their origin. Such experience as I have had leads me to think, with some others who have made careful trial of the hypophosphites in phthisis, that these salts are certainly to be regarded as valuable remedial agents in the treatment of this disease, especially in its premonitory and early stages.—*Practitioner, July* 1869, *p.* 14.

119.—STRYCHNIA AS A SUBSTITUTE FOR QUININE.

By Wm. J. Marsh, Esq., Littlemore.

With reference to the quinine difficulty at St Bartholomew's and elsewhere, it may not be amiss to remind the profession that about the fortieth of a grain of strychnia (equal to three minims of the British Pharmacopœia solution) is a medicinal equivalent for one grain of disulphate of quinine in nearly all cases where a vegetable tonic is indicated. Half a pint of mixture containing strychn. gr. $\frac{1}{40}$ in ℥ss., if swallowed by accident or design, in one dose, would not cause more inconvenience than the same quantity of mixture containing quin. disulph. gr. j. in ℥ss. The price of strychnine is about half as much again as that of quinine, but the very small quantity required as a medicinal equivalent renders it, in the end, all but infinitely cheaper. My own rather extensive experience of the two drugs in intermittent disorders in the fens of Lincolnshire enables me to state that, prejudice aside, the reputed "anti-periodic" virtue of quinine is not superior to that of strychnine. Both are powerful tonics, the chief difference medicinally being that of equivalent dose.—*Med. Times and Gazette, June* 12, 1869, *p.* 647.

120.—A CONVENIENT APPARATUS FOR THE ADMINISTRATION OF CHLOROFORM.

By ALFRED COLEMAN, Esq.

This instrument, which I prefer calling convenient to new, inasmuch as so many and varied plans for the administration of chloroform have been introduced that mine in principle at least may not be new, will, I think, be found to possess, from its construction, the following advantages. The apparatus consists, firstly, of a graduated bottle which contains the chloroform, at all times ready for use, being kept air-tight by a metal cap, which screws over its neck. When using the inhaler the cap is removed and a perforated glass stopper placed in the neck of the bottle; through this stopper the chloroform can escape drop by drop. The bottle thus arranged is screwed into the anterior portion of the inhaler, a metallic tube of about one and a half inch in diameter, which contains a piece of sponge so placed as to receive the chloroform as it escapes from the bottle. This first portion of the apparatus communicates with a metallic hollow sphere about two inches in diameter, the entrance and exit to which are covered with fine wire gauze, the use of this portion of the inhaler being to allow the chloroform to become thoroughly incorporated and evenly mixed with the air which enters the instrument. At the other extremity of the sphere is attached a universal joint with the ordinary Snow's face-piece. When employing the inhaler, it is advisable first to moisten the sponge with chloroform or better still to drop it into warm water and and then squeeze it out dry. The face-piece having been adapted to the face of the patient, the latter may be allowed to breathe air for a little time, which generally has the effect of overcoming nervousness; then the bottle holding the chloroform being turned round so as to be inverted, the chloroform escapes drop by drop into the sponge through which the patient inhales air, and the quantity administered can be easily observed by the divisions marked on the bottle.

In practice I have found this inhaler to possess the following advantages:—

1. The chloroform can be very gradually and evenly administered.

2. By means of the wire gauze and the sphere, it becomes so thoroughly mixed with the air as never to produce irritation of the glottis or air-passages, and in this respect most nearly resembles the valuable apparatus of Mr. Clover of any I have seen.

3. This instrument is ready for use almost at a moment's notice.

4. The quantity of chloroform administered can be ascertained at any moment.

5. At no time, I believe, can more than 3 to 3·5 per cent. of chloroform be inhaled, which, though less than the per-centage of Mr. Clover's apparatus, has never failed in my hands to produce the desired effects.

When employing the inhaler for operations upon the mouth, I first narcotise the patient in the manner described, and then remove the face-piece, adapting the small one, which just covers the nose and permits a sufficient quantity of chloroform to be inhaled through this air-passage—even when the mouth is open—to keep up the anæsthesia.—*St. Bartholomew's Hosp. Reports, Vol.* v., 1869, *p.* 105.

121.—EXCESSIVE USE OF MORPHIA, A DRACHM OF THE SULPHATE BEING TAKEN AT ONE DOSE WITH IMPUNITY.

By Dr. D. MacGillivray, Physician to the Ottawa Protestant Hospital, Canada.

In the month of June, 1867, I was called to visit Mr.—— M. D. B., staying at one of the hotels in this city, where he was confined to his room having symptoms of delirium tremens. He was 37 years of age, stout, muscular and plethoric, and of intemperate habits, had resided in New York city for the last six years, where he practiced his profession as barrister-at-law. About the commencement of January, 1865, he had an abscess in the thigh, from which he suffered severe and continuous pain, and in order to allay his agonies, and induce sleep, he was ordered by his physician to take a drachm of laudanum each night, and a similar quantity during the day. He continued by that prescription for a period of three months, until every symptom of his complaint had entirely disappeared; he then discontinued it, but much to his discomfort, becoming nervous, irritable and wakeful, and subject occasionally to intolerable tremors. He was forced to resume his habit. He made repeated efforts to master his desires, and stop the use of opium in any form, but without avail, and finding it impossible to do without it, he was obliged to resume his accustomed draughts, gradually increasing the dose from time to time as nature seemed to suggest and require it, until he had fostered himself into the daily habit of taking astonishingly enormous quantities. In order to satiate and appease his abnormal appetite he found it necessary to take half a drachm of sulphate of morphia daily, some days more and some days less.

He took as much as a drachm and a half in thirty hours, and found no alarming effects to follow; he frequently took three ounces of laudanum at one gulp, and repeated the same dose within twenty-four hours, with the only effect of causing snatches of sleep, lasting from one to four hours. He had always had a good appetite for food, and enjoyed comparatively good health. Abstinence from opiates was latterly followed by troublesome diarrhœa, associated with the other symptoms already named; when sleep occurred it was disturbed by frightful dreams. He was an inveterate smoker and a hard drinker, almost incessantly revelling in debauchery and profligacy, the more whisky he drank the more morphia he required to take. Until about a year ago he used laudanum almost exclusively, but to avoid the inconvenience arising from carrying about him such large quantities as he required to use, he betook himself to the use of morphia, of which he kept abundance on hand, but he took laudanum occasionally.

One evening, after he had recovered from his illness, at about seven o'clock, while I was present with him in his room, in order to assure me of the capability of his system resisting the effects of opium, an experiment I was very reluctant to witness, he opened a parcel containing twelve small bottles, each of which contained a drachm of sulphate of morphia, he took up one of these bottles and emptied its whole contents into a tumbler, which he had half filled with whisky, stirred the mixture well, and swallowed the terrible dose at one gulp (a quantity sufficient to destroy twenty or more lives), and in the course of fifteen or twenty minutes after drank down at one draught four ounces of laudanum, which he had procured in a drug store close by.

An hour after performing the dangerous experiment he went to spend the evening in the theatre, where he enjoyed the drama with all due complacency. I visited him at his rooms in the hotel at eleven o'clock the same evening, and saw him take nearly a fourth of a drachm of morphia in a glass of whisky before retiring. Fearing that the experiment might have proved too much for him during the night, I called to see him at an early hour the following morning, and to my utter astonishment found him wide wake, after having passed a quiet night, and apparently suffering from no ill effects of the poison. He asked for more whisky and morphia; I strongly remonstrated, and cautioned him against the results sooner or later to follow such enormous doses of poison and such flagrant abuse of his constitution—his only reply was, "I am used to it, and there is no danger." Satisfied and easy in his own mind that there was no danger, and that the seeming impunity he enjoyed in the past he would still enjoy in the future, he was willing and determined to pursue his dangerous habits. Two days after he went home to his family in New York, and was gone nearly four months; at the end of that time he returned to this city with the intention of taking up his residence here, with a view to practice his profession. When he arrived here he consulted me for urethral stricture. which caused him intense pain, and to allay it he was obliged to use opiates in larger quantities.

He was now feeble and exhausted, worn and emaciated, apparently fast sinking a victim to his evil habits, of the dangers attending which he was now fully convinced. He had been addicted to this destructive vice of opium eating for nearly three years, and it had gone on increasing from day to day until it had acquired its alarming and incredible magnitude. With the perfect consciousness, at last, that he was destroying himself, and with every desire to struggle against the insatiable cravings of his diseased appetite, he found it utterly impossible to offer the slightest opposition to them. In vain did he try to resist the baneful temptation. His love for ardent spirits was so strong, his appetite for opium so uncontrollable, that he must still indulge in the use of these insidious poisons, which he knew were undermining his system, slowly but surely, and as an inevitable consequence, nature yielded to their pernicious influence; an attack of delirium tremens supervened, and death closed his sad career.—*Canada Medical Journal, Feb.* 1869, *p.* 352.

122.—AN EXPERIMENTAL INQUIRY INTO THE USE OF CHARCOAL RESPIRATORS AS A MEANS OF WARMING THE AIR INSPIRED.

By Dr. Wm. Marcet, F.R.S., Assistant Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

[The use of charcoal respirators was first advocated by Dr. Marcet, and the object of the present paper is to show, experimentally, that charcoal possesses in a high degree the power of warming the air taken into the lungs of the person who wears it.]

In the following experiments I employed an ori-nasal respirator, so constructed that the air for respiration passed freely through a thickness of 7-16 in. (or nearly $\frac{1}{2}$ in.) of tight-packed fragments of charcoal. The respirator fitted closely to the mouth and nose, so that the whole of the air breathed found its way through it. The centre of the respirator was perforated in order to admit the stem of a thermometer through it, the instrument blocking up the hole. Thus the bulb of the thermometer could be inserted into the mouth through the respirator without interfering with its action, as respiration could be carried on through the charcoal the same as before.

My thermometer was very carefully made by Casella, and divided into fifths of a degree centigrade, allowing of 0·1° to be estimated (the degrees have been tabulated in the Fahrenheit scale.) I read the instrument without any difficulty with the assistance of a looking-glass placed at a certain angle close to the stem of the thermometer, and which reflected it to my eye. By this means the rise and fall of the mercury could be clearly and accurately observed while the bulb of the thermometer was in my mouth.

The temperatures obtained are given in the form of a table appended to the present communication. In every experiment they were taken as follows :—

1st. The temperature of the air.

2nd. That of the air in the mouth kept slightly open, breathing being carried on through it at the time. Great care was taken that the bulb did not come into contact with the tongue or palate, so that the temperature of the air in the mouth alone should be taken; and in every experiment the bulb of the instrument was kept as nearly as possible in the same position in the cavity of the mouth.

3rd. That of the air in the mouth through the respirator, the thermometer being in other respects as much as possible in the same condition as when the temperature of the air in the mouth was ascertained without the interposition of the respirator. I thus obtained the mean temperature of the air in the mouth while the respirator was in use. This mean temperature might also be expressed as the mean of the temperature between the minima and maxima of the oscillations of the mercury during the inspirations and expirations; these oscillations amounting in ordinary breathing to about 2° Fahr., when the respirator was not worn, and about 0·7° when the respiration was carried on through the charcoal.

A statement of the difference between the mean temperature of the mouth with and without the respirator has appeared to me the best mode of representing the increase of warmth of the air breathed due to the action of the respirator. The present inquiry is, however, open to inaccuracy from three different sources. The first is the difficulty, if not the impossibility, of placing the thermometer in the cavity of the mouth respectively in the same condition in every experiment. The second is the cooling action of the cold external air on the lining membrane of the mouth, which of course reacts on the thermometer. The third is the cooling of the bulb of the thermometer from the evaporation of any moisture which may have condensed upon it.

These experiments cannot, therefore, be considered as absolutely correct. I believe, however, their results may be accepted, considering the object I have in view, which is exclusively practical. The result obtained is as follows: Six experiments were undertaken when the temperature of the air varied from 55·7° Fahr. to 40·1° respectively (in each experiment). The increase of temperature of the air while passing through the mouth during the act of respiration due to the charcoal respirator, ranged from 8·3° to 11·5°. The additional warmth caused by a *metallic respirator* was 9·3°; while that produced by a *charcoal respirator*, the experiment being undertaken under the same circumstances, amounted to 11·5°, giving 2·2° in favour of the charcoal. One experiment, however, is not sufficient to establish the priority of one respirator over the other, so far as their power of imparting heat to the breath is concerned; but supposing them to be equally available in that respect, the well known property of charcoal of purifying air which is drawn through it, both from foreign gases and mechanical impurities, ever so finely divided, is enough, I believe, to show the superiority of the charcoal respirator over the other.

It follows also, from the present experiments, that a charcoal respirator will not only warm the cold air breathed out of doors, but will also impart additional heat to the air of a room comfortably warm, although considerably under the temperature of the body; and it is questionable whether, in certain cases of excessive irritability of the throat or bronchi, in-door use of the respirator may not be attended with advantage. My experience is now tolerably extensive as to the out-door use of the respirator in winter time; a number of my patients at the Consumption Hospital are wearing them in cold or foggy weather, or to rid air of smoke or other impurities, and they all agree as to the comfort and benefit they experience from their use.

The charcoal respirators are manufactured by Mr. Rooff, of No. 7, Willow-walk, Kentish-town; and I may add that I am in no way pecuniarily interested in their sale.—*Lancet*, *Nov.* 6, 1869, *p.* 632.

123.—ON THE ACTION AND USES OF IPECACUANHA.

By Dr. Charles Douglas Phillips.

Ipecacuanha exerts a power over all diseased mucous membranes in checking profuse mucous secretions, whether from the air-passages, the alimentary canal, or the genito-urinary apparatus. It is a most useful remedy in spasmodic coughs attended with profuse mucous expectoration and vomiting, especially in those troublesome coughs, accompanied by vomiting, which are incident to pregnancy. Its beneficial operation is clearly discernible in most cases of continued and obstinate retching or vomiting, where the stomach is not primarily affected, but disturbed by sympathy with some other part or organ of the body, whether the primary affection be acute or chronic. There are cases of sickness and spasmodic cough during pregnancy, accompanied by ulceration of the uterus, which fail to yield to it; but in many of these cases it will succeed if a few doses are administered before the patient raises her head in the morning.

The following case, amongst many others, came under the writer's observation last year: it is here mentioned as characteristic of some of the therapeutic actions of this drug:—

Mrs. E. M., aged 33, of a nervous-bilious temperament. came under the writer's care May 27, 1868. She had enjoyed good health until within the preceding five months, when she had suffered much from loss of appetite, nausea, vomiting, and frequent retching, especially in the morning. These symptoms steadily increased, and about four weeks later a severe cough ensued, accompanied by much dyspnœa and profuse mucous expectoration; the cough rarely subsided without first bringing on retching or vomiting. For the six weeks last past the cough and dyspnœa had so seriously disturbed her rest as to prevent sleep, or even lying down, for hours through the night; and the vomiting and retching, which occurred eighteen or twenty times in the twenty-four hours, had so emaciated her as to cause serious anxiety to herself and her friends. She was now about six months advanced in pregnancy, pale, weak, and emaciated; had a bad cough, with profuse viscid expectoration, and much dyspnœa, the cough almost invariably attended with vomiting or retching; appetite capricious and bad; tongue brown; vomiting after each meal, quite independent of cough; bowels regular; urine scanty and loaded with lithates. The form of the chest well developed; percussion normal throughout; sibilant and sonorous râles accompanying inspiration and expiration, anteriorly and posteriorly on both sides; respiration 18 per minute; cardiac sounds normal; pulse 72, weak; temperature 98½.

℞. Vinum ipecacuanhæ ʒj.; aquæ pur. ℥vj. Mix.

A teaspoonful to be taken frequently for cough or vomiting.

June 8, 1868. Greatly improved in appearance; feeling stronger; no sickness or retching for the last six days; able to lie down and sleep throughout the whole night the cough, dyspnœa, and wheezing having almost left her; appetite good; tongue clean; troubled with flatulency; bowels regular; urine clear, dark in colour; pulse 72, stronger.

Repetatur medicamentum. Not to be used except in case of cough, vomiting, or retching becoming troublesome.

July 15, 1868. No vomiting or retching since last visit; cough recurring only two or three times in the forenoon, giving her no trouble; flatulency still continuing, with oppression after meals; appetite excellent; tongue clean; bowels regular; gaining flesh rapidly.

℞. Tinct. nucis vomicæ ʒss; aquæ pur. ℥vj.

A tablespoonful to be taken morning, noon, and night.

In January 1869, Mrs. M., was looking fat and strong, and said she had had no return of cough or sickness since the date last mentioned.

The writer has now before him twenty-three carefully recorded cases of hooping-cough. In most of these the cough came on in violent paroxysms, continued until a quantity of viscid mucus was ejected from the lungs by the mouth, and often by the nostrils, and increased in intensity until the contents of the stomach were evacuated.

In all these cases, where the vomiting had been more troublesome than the whoop, ipecacuanha has given very marked relief.

The dose recommended is half a drachm of the vinum ipecacuanhæ in four ounces of water, a dessert-spoonful to be taken every one, two, or three hours, according to the severity of the cough. Children under five years old should only take a teaspoonful of the same mixture, but many children of this age can tolerate, and are benefitted by, much larger doses.

In the capillary bronchitis of children, even when complicated with croupy symptoms, it acts well. In these cases the writer orders ʒss of vinum ipecacuanhæ to four ounces of water, a teaspoonful to be taken every one or two hours, or much more frequently if the symptoms are urgent.

In many cases of nocturnal spasmodic asthma, in which hours are spent in great distress, with livid face and lips, loud wheezing throughout the chest, and want of breath, causing fear of suffocation, if there is no organic disease of the heart or the lungs, ipecacuanha will give quick and marked relief. Five drops may be taken as a dose, repeated every ten to thirty minutes for two or three hours, unless relief comes much sooner, in which case the dose should be diminished and taken less frequently. Care should always be taken to avoid its emetic or nauseating effect.

In these affections of the lungs, its expectorant and antispasmodic character cannot be doubted, nor its curative action in controlling and stopping the abnormal secretion of mucus.

Hemorrhage in the early stage of tubercular phthisis, and in most stages of this disease, when produced by engorgement of the bronchial mucous membrane, and accompanied by little or no acceleration of pulse or increase of temperature, is often readily stopped by ipecacuanha. In hæmatemesis arising from vicarious menses, and also in some cases of menorrhagia, it is very useful.

In many cases of dysentery it lessens the bloody and mucous discharge, and removes the cutting pains and tenesmus, especially in the early and late stages of the disease. In cases of dysentery or diarrhœa, where nausea, vomiting, or retching exists, ipecacuanha will stop the sickness, and at least control the dysentery or diarrhœa. The watery diarrhœa during dentition the diarrhœa with green evacuations, and the dysenteric diarrhœa, which are so common among children, rapidly yield to this drug. Vinum ipecacuanhæ is effective in dysentery and diarrhœa, but the writer has preferred the pulvis ipecacuanhæ, considering its action more speedy and trustworthy.

It is more necessary to vary the dose in dysentery than in any other class of cases, one grain every one or two hours being quite sufficient with some persons, whereas others require ten, twenty, or more grains as a dose. These larger doses sometimes, when first administered, bring on vomiting, which it is well to avoid; but if the patient is kept lying on the back, and the dose persevered with, it can generally be tolerated, and a rapid recovery often follows.

In the diarrhœa and dysenteric diarrhœa of children, one-fourth to one half of a grain, with a little white sugar, at intervals of one to three hours, is generally sufficient, but the quantity must be increased if necessary.

In this paper ipecacuanha alone has been considered, not its relative value as compared with other drugs. It is not alleged to be the best remedy in all the cases enumerated above, but in all it is a useful one.

[Dr. Ringer's late work on Therapeutics having asserted the effect of small doses of ipecacuanha in checking vomiting, the Editor wishes to accumulate evidence upon this matter, as to which he is at present unable to pronounce any opinion. But he calls attention to the fact that should it be proved, as seems likely, that small doses of ipecacuanha exert a tonic effect upon the sympathetic system generally, it will be the most effective blow yet given to the homœpathic theory of *similia similibus.* It would be a farther illustration of the fact, which is forcing itself more and more upon our notice, that the words "similar" and "opposite," as regards the relations between drugs and diseases, are equally incorrect; being both of them based on the metaphysical fallacy that a drug must always act after one *kind*, though in different *degrees*, whatever the dose in which it may be given.—ED. PRACTITIONER.]—*Practitioner, Nov.* 1869, *p.* 277.

124.—NEW MODE OF ADMINISTERING NITROUS OXIDE.

By **ALFRED COLEMAN**, Esq., London.

Some interesting improvements in the mode of administering nitrous oxide gas have recently been perfected by Mr. Coleman, at the Dental Hospital of London. On Thursday, the 7th inst., this gentleman anæsthetised, upon a new plan, eight patients in the hospital, for the removal of teeth. All who have had much experience in the use of the protoxide of nitrogen have found that any admixture of air with the gas greatly impairs its efficacy. The insensibility is less rapidly and less perfectly produced under these circumstances, whilst the patient is invariably more excited during, and more prostrated after, the inhalation of the gas. In order, therefore, to secure the entrance into the blood, through the lungs, of pure nitrous oxide without accompanying air, Mr. Coleman so arranges his apparatus that he first dilutes with nitrogen the oxygen of the residual air of the lungs, and then permits the patient to breathe pure nitrous oxide. By this method the patients become more speedily unconscious, and the anæsthesia lasts longer, at the same time that they appear throughout the administration calmer than is usually the case under the ordinary mode of administration. It is a noteworthy fact, also, that in none of the eight cases was there the least appearance of lividity. During the inhalation of the nitrogen, the pulse was noticed to fall steadily, but upon supplying the nitrous oxide it soon regained its force and frequency. Mr. Coleman stated to those who witnessed the inhalation, that he believed that hydrogen would be more successful than nitrogen; but as the inhalation of that gas often produces disagreeable sensations. he preferred trying the effects of nitrogen before employing hydrogen. If by this new method of administration it shall be found that the anæsthesia produced by nitrous oxide can be rendered more lasting, say for a period of even only ten or fifteen seconds, it will be a great boon to the dentists, who oftentimes have most uncomfortably to expedite their operations with it. As regards cost, the above plan would be found the most economical of any yet devised.—*Lancet, Oct.* 16, 1869, *p.* 550.

125.—THE OXALATE OF CERIUM IN DYSPEPTIC VOMITING.

By Dr. S. A. LUCAS, Kirkdale, Liverpool.

I fully agree with Dr. Curran as to the beneficial effects of the oxalate of cerium in the nausea of pregnancy. I have employed it for vomiting from various causes, with good effects. I have had a case lately of dyspeptic vomiting, where its *tonic* and *sedative* effects were well marked. The patient, a married lady, had been attended by a doctor for two months, suffering from severe vomiting many times in the day. The doctor tried many remedies—bismuth, chlor. potass, lime-water, creasote, hydrocyanic acid, &c.—without giving relief to the patient; he gave the case up. I was sent for, and found the lady suffering from facial neuralgia, as well as the vomiting. I prescribed a liniment to be applied to the face (equal parts of lin. chloroformi and lin. belladonnæ), and put her at once upon—

℞. Cerii oxal., gr. xxxvj.; ext. hyos., gr. xxiv. Div. in pil. xij.; cap. j. ter in die.

For two days afterwards she had no vomiting; on the third day she vomited once, which I believe due to her having eaten potatoes (quite against my prescribed regimen). I made her go out for a short walk every day, and by the end of the week vomiting and neuralgia had disappeared, and her health rapidly returned.

It may be seen from this that the oxalate of cerium in its maximum dose (gr. iij.) effected a cure where all other well-known remedies failed; and I hope the profession will give an extended trial to a drug that has not received the attention it merits since its introduction by Professor Simpson.—*Medical Press and Circular*, *Aug.* 4, 1869, *p.* 94.

126.—A CEMENT FOR TEETH.

The French and German dentists prize highly the following formula as a cement for teeth: Finely powdered borax, 1 part; freshly calcined oxide of zinc, 9 parts; finely powdered silex, 2 parts; mix well together, and make a firm plastic mass.—*New York Medical Record*, *June* 15, 1869, *p.* 180.

127.—ON THE INFLUENCE OF ALCOHOL UPON THE TEMPERATURE OF THE BODY.

By Prof. C. BINZ, University of Bonn.

[The following paper presents a proof of the results which have been obtained at the instigation of the author by some of the students who are working in his pharmacological library. Lichtenfels and Fröhlich published in 1852 some scientific investigations on the action of small non-poisonous doses of alcohol on the animal economy, and the results they obtained were as follows :]

1. The temperature in the mouth was 37°·0 Centigrade. About 24 ounces of beer, containing between 3 and 4 per cent. of alcohol, were then drunk : in fifteen minutes the temperature had fallen to 36°·5, and remained so for sixty and even for one hundred minutes.

2. The normal temperature was 36°·9 Cent. ; a flagon of wine containing about 8 ounces was drunk, and after forty minutes the temperature had fallen to 36°·6.

3. Four ounces of water containing 8 per cent. of alcohol, warmed to 36°·8 Cent., were quickly ingested. The thermometer stood previously at 36°·9 ; after five minutes at 37°·1 ; after twenty-five minutes at 37°·0; after forty-five minutes at 36°·9.

4. Two ounces of water, containing 17 per cent. of alcohol, were drunk whilst lukewarm. In two minutes the thermometer rose from 36°·6 to 36°·9. In thirty minutes it stood at 36°·7 ; in forty-five minutes at 36°·6. We may easily convince ourselves then that, as the Viennese authors maintain, the primary augmentation of temperature is occasioned by the stimulating action of the alcohol on the blood-vessels of the mouth. More recently Tscheschechin, of Russia, has published the results of some researches which he has made on rabbits. He mixed 10 C.cm. of alcohol of 80 per cent. strength with a little water, and injected the fluid into the stomach. He found that in twenty minutes the temperature sank from 39°·2 to 37°·2. Both the respiration and the pulse became quicker, and the vessels of the head were strongly injected. After the lapse of rather more then an hour the thermometer showed a temperature of 35°·7. The animal was insensible, but recovered in a few hours. Very similar results were obtained by Möller, of Königsburg. Both authors state that when large doses of alcohol are administered to warm-blooded animals, their temperature becomes reduced ; and Möller adduces the well-known fact that a drunken man soon freezes to death when exposed to severe cold.

All the observations detailed in the following pages were made with the Centigrade thermometer (Celsius'), the one now very generally employed both in medical practice and by the scientific world generally, and which, it may be added, like the decimal system, may be regarded as the most rational and intelligible instrument. In all about forty-nine experiments were made. The first series were undertaken with the view of determining the effect of very small quantities of alcohol upon the temperature of the body. We started with the conviction that the stimulating influence of the alcohol was as indubitable on the vital properties of the juices, as on the nervous system. But the results of our experiments were not in accordance with this view. I append only one of this series of experiments, since all the others gave identical or very similar results.

Experiment.—Strong terrier, about two years old, deprived of food for ten hours previously.

A.M.	Temp.	Pulse.
10.40	38°·7′	114
10.50	38 ·7	110
10.55	38 ·6	110

Two cubic centimetres of alcohol 86° per cent., diluted with a little water, were subcutaneously injected.

A.M.	Temp.	Pulse.
11.10	38°·5′	112
11.30	38 ·1	118
12.0	38 ·2	116
2.30 p.m.	38 ·5	—

After a few days had elapsed, the same dog had one C.cm. of the same alcohol, diluted with water, injected subcutaneously. The temperature quickly sank about 0°·4 cent., but after the lapse of two hours was again normal.

Experiments on man, made with small quantities of alcohol, led to very similar results. Half a glass of light hock, or a small glass of cognac, caused a fall of from 0°·4 to 0° 6 in a very short time.

The second series of experiments were instituted to determine the effects of large doses of alcohol.

Experiment.—A strong poodle about four years old.

A.M.	Temp.	Pulse.
11.15	38°·4′	89
11.30	38 ·3	92
11.45	38 ·3	90

In the course of half an hour from this time, 25 C.cm. of alcohol, mingled with water, were introduced into the stomach. The animal made attempts to vomit, but was prevented by exerting pressure on the œsophagus.

In the course of six minutes, it fell over on its side in a state of intoxication.

P.M.	Temp.	Pulse.
12.30	37°·5′	108
1.0	37 ·1	112
2.0	36 ·7	118
3.0	36 ·5	117
4.0	35 ·8	112
5.0	35 ·8	113

The dog was then apparently lively, but walked with a very irregular gait, and occasionally vomited some tough mucus, having a strong odour of alcohol.

Experiments were now made to ascertain the effects of poisonous doses; and it was found that both in dogs and rabbits a constant fall in temperature occurred, amounting to between 4° and 5° in from one to two hours, at which period death took place.

In the third series of researches, dogs, cats, and rabbits were treated by the injection of pus, or of the juice of putrefying fodder, and having been thus thrown into a state of fever, were treated with alcohol.

Experiment.—Into a large shepherd's dog of mongrel breed, 3 C.cm. of pus from an inflammatory abscess were injected beneath the skin of the back.

P.M.	Temp.	Pulse.
3	38°·9′	114
3.30—Injection of the pus.		
4	39 ·4	126
4.30	40 ·1	120
5	40 ·6	127
6	40 ·5	122

At this time 5 C.cm. of alcohol of 86 per cent., diluted with water, were injected into the stomach.

P.M.	Temp.	Pulse.
6.30	40°·0	130
7	39 ·6	126
7.30	39 ·2	120
8	39 ·0	122
8.30	39 ·3	126

As violent vomiting now supervened, 4 C.cm. of alcohol, diluted with 6 C.cm. of water, were injected subcutaneously.

P.M.	Temp.	Pulse.
9	39°·0	132
9.30	38 ·8	128
10	38 ·8	131
A.M.		
9 next day	39 ·0	141

The injection of 5 C.cm. of alcohol, with an equal quantity of water, was now practised subcutaneously.

A.M.	Temp.	Pulse.
9.30	39°·1	136
10	38 ·7	133

No more alcohol was administered after this, and the febrile symptoms were now observed to rise rapidly in intensity, and the animal soon died. Throughout the whole experiment, no trace of intoxication was exhibited by the animal. After the alcohol had been given, it sat quietly in the corner, whimpered slightly, and had its eyes constantly open.

A final series of experiments were occupied with endeavours to solve various questions, and first, in what way alcohol operated when taken coincidentally with full diet. It was found, in regard to this point, that the so-called fever of digestion,—that is, the exaltation of temperature after meal times,—was comparatively slight. This was in accordance with the observation of Vierordt, that after food the amount of carbonic acid exhaled is considerably increased, but when alcohol was taken with the food the quantity of that gas eliminated was less. Just so, here it appeared, that the augmentation in the temperature of the blood, resulting from a full meal, either did not occur at all, or only to a very slight degree, when alcohol was taken.

In all these cases the temperature of the rectum was alone taken. An experiment made on a man in whom the temperature of the mouth and anus were coincidently taken by the introduction of a thermometer into each, showed that there was no difference between them, and that consequently the place where the temperature was taken was a matter of no importance. The same result was obtained in the case of a rabbit in which one thermometer was introduced *in ano*, and another beneath the skin of the back.

As a consequence of these investigations, the alcohol question may assume a somewhat different aspect. The introduction of the thermometer into medical practice, to which only the unscientific will object, has taught us that high temperature in the febrile state constitutes one of the most dangerous symptoms in various diseases. Alcohol is thus frequently called upon to act as a preservative of life by its antipyretic properties. It removes the conditions which induce paralysis of the brain and heart; and it should be employed in those cases especially where the thermometer shows that too high a temperature is present. In this respect it approximates to quinine in its action, but at the same time possesses in addition its well-known stimulating action on the central nervous system and upon the heart. It is self-evident that its value in this respect is not in any way impaired by its antipyretic properties. In most cases, however, it will be found that the depression of the powers of the system is directly dependent upon the temperature of the blood, and passes off when it falls.

Two circumstances are opposed to the extensive employment of alcohol in acute disease: first, its effect upon the pulse; and secondly, its influence on the tone and diameter of the vessels.

In all our experiments, the number, and it appeared also the strength, of the contractions of the heart rose. Whenever, therefore, such an effect is from any cause to be feared, alcohol is obviously an improper remedy to be employed.

According to Waller and the remarkable researches of Cohnheim, pus originates in the passage of the moderately enlarged white cells through the relaxed walls of the dilated blood-vessels. I have convinced myself by direct observation of the perfect accurracy of the statements of Cohnheim, though they are still contested by some investigators, and have elsewhere, though undoubtedly with another object in view, furnished a sketch of my own. Alcohol induces dilatation of the capillaries of various regions of the body, but especially of those of the head, with great precision and certainty. And perhaps it may even be said that it causes dilatation of the capillaries throughout the body. If now there be already present a strong tendency to the formation of pus, it may be materially favoured by the administration of alcohol. We may, perhaps, be allowed to attribute the injurious effects which now and again have been observed to follow the employment of alcohol to these actions. Alcohol holds a secondary position as an antipyretic as compared with quinine, because the latter does not possess these disadvantages.

It remains for us still to consider to what causes we are to attribute the refrigerating influence of alcohol, and there appear to be three possibilities:—that it may operate upon the nervous system; that it may act on the means which the system possesses of regulating its temperature by the perspiration; or, lastly, that it may exert its influence directly on the oxidizing processes which take place in the juices. After all that has been said upon the subject, it is the last action which seems to be by far the most probable.—*Practitioner, Sept.* 1869, *p.* 137.

128.—ON SOME OF THE ADVANTAGES OF TAPPING IN THE TREATMENT OF OVARIAN TUMOURS.

By George Southam, Esq., Surgeon to the Manchester Royal Infirmary.

[Considering the high rate of mortality still attending the operation of ovariotomy, and the fact that the disease rarely destroys life for several years; a grave responsibility attaches to the surgeon who recommends ovariotomy, so long as more simple means will keep the growth of the tumour in check, and the patient's general health unimpaired. Among these means, tapping appears to be the chief remedy.]

Medical literature supplies us with a few instances where tapping has sometimes arrested the disease for so long a time that it has almost been regarded in the light of a cure. Three examples, at least, of this kind have come under my own notice; and my experience leads me to think that in cases judiciously selected the operation, if carefully performed, may be more frequently successful than is generally supposed.

In 1843, Mrs. G., of Salford, consulted me respecting the propriety of the extirpation of a tumour, from which she had been suffering about three years. She was then 33 years of age, married, and had four children, the youngest two years old. In company with the late Mr. Thomas Slack, her surgeon, I made a careful examination. We found her abdomen much distended, the swelling caused apparently by fluid. As the patient was in a feeble state of health, we decided upon tapping, and drew off twenty quarts of a clear fluid of low specific gravity. The operation was followed by some constitutional disturbance, but in three weeks she seemed to have completely recovered. About twelve months afterwards, the abdominal swelling returned, and at the end of two years from the former operation the distension was so large that we had again recourse to the tapping, and removed twenty-two quarts of fluid. Her recovery was most favourable. At the end of a fortnight, she was able to resume her domestic duties, and remained in a satisfactory state of health, until 1864, a period of nineteen years. Since that time, however, the swelling has gradually returned, but so slowly as to occasion little or no inconvenience, until the last few months; and though the abdomen is considerably enlarged, she feels at present no necessity for operative interference. She is now in her sixtieth year, and to all appearance in better health than when she first consulted me twenty-six years ago.

In 1843, I was requested by Dr. G. C. Watson, of Chester, to visit with him Miss S., aged 25, residing in Liverpool, who was suffering from an ovarian tumour, the removal of which, two gentlemen, who had made this disease a speciality, had recommended. A careful examination convinced us that the tumour was a unilocular cyst; and, as the patient appeared in good health, we advised tapping. The operation was performed by Dr. Watson with a medium-sized trocar, and between five and six quarts of a semi-transparent viscid fluid removed. The patient's recovery was rapid and complete; and, at the end of five years, when I last heard of her, there had been no return of the disease; and Dr. Watson informs me that from that time he has had no reason to suppose that she has not remained perfectly well.

In July, 1867, Miss M., aged 25, asked my advice respecting an ovarian tumour that had been developing itself about three years, and which she had been urged to have removed. It appeared to consist mainly of fluid contained in a single cyst, and her health was not in the least impaired. I therefore recommended her to be tapped. Six quarts of clear, viscid fluid were removed. She speedily recovered, and, on a careful examination made only a short time ago, I could detect no return of the swelling.

Such favourable results as the above are only to be expected when the disease consists of one or perhaps two cysts; but, as a fair proportion of ovarian tumours assume this character, the possibility of recovery after tapping ought not to be overlooked in their treatment. It, must, however, be admitted that the beneficial effects of the operation are frequently only temporary, and therefore it ought not to be undertaken if likely to hinder the successful performance of ovariotomy.

Fortunately, this evil result is not often to be apprehended; on the contrary, one or two tappings, especially when the cyst has obtained a considerable size, are usually succeeded by a marked improvement in the patient's health, and by a reduction of the original tumour, so that only a moderate incision through the abdominal parietes will be necessary for its extraction; both of which conditions are favorable to the success of the major operation.

Amongst the cases of ovariotomy that have come under my notice, several have been those of patients in comparatively good health, where the tumours were of recent formation, of moderate size, and free from adhesions, and the operation itself, therefore, of the simplest description; but the results have not been so satisfactory as in cases of longer standing, and of more complicated character,—acute peritonitis being usually the cause of death in the former, shock and its consequences in the latter. The tendency of the peritoneum, therefore, to inflammatory action seems to diminish with the duration of the disease, probably on account of the continued friction of this membrane against the surface of the cyst diminishing its sensitiveness.

Accordingly, in the earlier stages of the disease, whether the the tumour consisted of single or of multilocular cysts, it has for some time been my custom to advise a postponement of ovariotomy; tapping the tumour once or twice when it has become inconveniently large. Since adopting this plan, I have removed seven diseased ovaries, and in only one case was the operation fatal. Five of the patients had been tapped once, one twice, and one three times, the fatal case being among the first five. The recovery of those tapped only once was the most rapid, although in three of them the tumours were multilocular cysts. The two tapped more than once made favourable progress; but their complete restoration was not accomplished for several weeks, owing probably to the fluid in the cysts having become purulent after the second operation in one, and after the third in the other. Suppuration of the cyst I have not unfrequently found to be the consequence of repeated tappings; and, therefore, it is a matter of doubt whether the operation should be undertaken more than once or twice, as its repetition may diminish the chance of successful ovariotomy. The experience of Mr. Spencer Wells is also favourable to a preliminary tapping, for he found that, whilst the average mortality in 135 cases, where the patients had never been tapped, was 27·40 per cent., where the patients had been tapped once mortality was only 25·64 per cent. (Proceedings of the Royal Medical and Chirurgical Society, 1869.)

It is scarcely necessary to dwell on the advantages of tapping in clearing up any doubtful points in the diagnosis of abdominal tumours; for no one, I think, would resort to extirpation in such cases until he had first ascertained the nature and connexions of the disease, for which purpose tapping has not unfrequently been found most useful.

In offering these remarks on the tapping of ovarian cysts, I must not omit to notice the mode of performing the operation, especially as, when ovariotomy was in its infancy, I first called attention to the dangers which attended its performance (London Medical Gazette, 1843.)

It was then the custom to use a full-sized trocar; the patient was seated on a chair, and, to ensure the complete expulsion of the contents of the cyst, the abdomen was compressed with towels by the operator's assistants. Additional force was also often applied by pressing the abdomen with the hands, whereby considerable violence was sometimes inflicted on the peritoneum and the contents of the abdomen, which, with the frequent entrance of air through the trocar into the cyst, often led either to inflammation of its walls or of the peritoneum.

The present mode of operation is comparatively free from these dangers. The patient is allowed to recline in bed or on a couch. A small-sized trocar with a stop-cock is employed, to which is attached a long piece of elastic tubing for conveying the fluid to a utensil placed near the patient, which tubing, when used on the principle of the syphon, as recommended by my colleague, Dr. Roberts, excludes all air from the cyst. The fluid, by this means, is removed very slowly, and thus faintness is prevented, whilst the gradual contraction of the cyst and abdominal parietes renders it unnecessary either to press the abdomen with bandages or with the hands, and the risk of peritoneal inflammation is lessened. By attending to these precautions, tapping, which was formerly often accompanied with considerable danger, has become one of the simplest and safest operations in surgery.—*Lancet, Oct.* 30, 1869, *p.* 605.

129.—ON THE CURE OF PHYMOSIS BY "SUDDEN DILATATION."

By Dr. Francis R. Cruise, one of the Surgeons to the Mater Misericordiæ Hospital, Dublin.

I wish briefly to advocate the cure of phymosis by "sudden dilatation." This treatment appears to me so efficient, safe, and ready, that I consider it quite a boon, especially as phymosis is a condition at once common and objectionable. The success of this method depends on the circumstance that the contraction is usually situated *in the mucous membrane of the prepuce, just at its junction with the skin.* Accordingly when we open this contracted point forcibly, the mucous membrane *tears up* while the skin expands with the utmost facility.

The operation may be performed with a common dressing forceps, but I prefer one specially designed for the purpose.

[The instrument used by Dr. Cruise is like an ordinary dressing forceps with the extremities of the blades bent on the flat at right angles to the rest of the instrument. To regulate the extent of dilatation there is a little arc in the handles, cut with a screw thread, and carrying a movable nut which can be adjusted to the requirements of the case. The instrument is made by Messrs. O'Neil and Thompson, of Dublin.]

Before the operation it is desirable to calculate the amount of dilatation required, and to adjust the dilator accordingly. I do so on this plan:—I cast a loop of thread loosely round the penis at its thickest point, namely, at the corona glandis; now, using the loop as a measure, I arrange the nut upon the arc, so that when the handles of the forceps are closed its jaws separate enough to make this loop tense.

Now I proceed to operate as follows:—I commence by seeking out the preputial orifice, exactly where the skin and mucous membrane unite; into it I insert the closed jaws of the forceps, taking care not to pass it into the urethra; now I close the handles suddenly and firmly. The mucous membrane tears up in the line of the axis of the penis, and immediately the foreskin may be retracted completely.

The pain endured is sharp but transient, and I have never seen bleeding or other trouble follow. The only dressing needed is a strip of lint, moistened with water or other lotion, which should be wrapped round the part so as to retain the foreskin retracted and cover the wound. After a few days nothing is required, and in all suitable cases, operated on with due care, the result has been perfect.

It is just a year since I adopted this method of treating phymosis, and I have the experience of about a dozen cases. I operated on some of these in the Mater Misericordiæ Hospital, and on others in private practice. In the latter instances I experienced special comfort, no chloroform being needed, and the operation being performed in my study. The method has been tested by my friends, Dr. Robert Macdonnell, Dr. Stokes, junior, Dr. Tyrrell, and Dr. Henry Curran, and has given entire satisfaction. Our joint experience has led to certain conclusions which I will now state.

1st. This method of treatment is best suited to cases of simple uncomplicated phymosis, and is not so successful where there is induration or matting of the parts from inflammation.

2nd. It is requisite to dilate *fully*, otherwise the result will be only partially successful. I learned this by the result of some of my earlier cases.

3rd. It is advisable after the operation to keep the foreskin retracted for twenty-four or forty-eight hours, as neglect of this precaution may lead to failure.

It is not difficult to understand the reason. When the prepuce is forcibly dilated the mucous membrane tears in the direction of the axis of the penis, and if it heals up in this posture very little is gained, On the other hand, when the foreskin is retracted the rent becomes transverse, and if the parts are so retained until some adhesion takes place between the skin and mucous membrane, then subsequent contraction, affecting only the length of the line of rent, is inconsiderable. I have satisfied myself of this mechanism of the operation by experiments on the dead body, Dr. Robert St. John Mayne having kindly sought out for me a subject presenting the condition of phymosis.

In conclusion I beg to say that the idea of sudden dilatation as a cure of phymosis is not original with me. I saw the late Dr. Hutton use a dressing forceps for this purpose fifteen years ago, and the French surgeons have lately resorted to it.—*Dublin Quarterly Journal, Nov.* 1869, *p.* 482.

130.—HERNIA KNIFE: CONSTRUCTED TO PREVENT THE BLADE BEING OVERLAPPED BY THE BOWEL DURING HERNIOTOMY.

By B. Wills Richardson, Esq., Examiner to Royal College of Surgeons, and Surgeon to the Adelaide Hospital, Dublin.

Every practical surgeon must be aware how liable a protruded portion of bowel is to be cut, should it overlap the edge of the knife in the ordinary operation for the relief of a strangulated intestinal hernia; one of the accidents for the avoidance of which the knife of Sir Astley Cooper and some other hernia knives were designed.

The instrument introduced here to the notice of the surgeon has been planned for the purpose of preventing the bowel overlapping the blade; and may be passed to the seat of stricture without the finger as a guide, more space being thereby reserved for our sight during a very critical stage of the operation.

I am aware of Le Dran's knife having a provision for the attainment of the same object, in the two wings that project from its back.

This can be equally well attained by the more simple plan of attaching a broad back to the blade. In my knife the broad back is secured to the blade by a rivet at the anterior end, and a screw posteriorly. It projects $\frac{3}{10}$ths of an inch beyond the end of the blade; and laterally, about $\frac{2}{10}$ths of an inch in the broadest part. It tapers towards, and terminates near, the handle.

The blade for $\frac{6}{8}$ths of an inch from the anterior end has a cutting edge which terminates a little behind its greatest convexity. From this point to the handle the edge is blunt and does not cut. The most convex portion of the cutting part of the blade is $\frac{2}{8}$ths of an inch in depth.

With this knife, unless in very awkward hands, a cutting accident to a protruded bowel is barely possible; and it is so shaped and sized that it can be carried in the ordinary surgical pocket-case.—*Dublin Quarterly Journal, Nov.* 1869, *p.* 465.

131.—TUBULAR PRESSE-ARTERE FOR THE IMMEDIATE COMPRESSION OF ARTERIES.

By B. WILLS RICHARDSON, Esq., Surgeon to the Adelaide Hospital, Dublin.

In the year 1793 Deschamps invented an instrument for the immediate compression of arteries, which is so arranged that the artery can be compressed directly against a horizontal bar by the tightening of a ligature, the ends of which are brought through passages in the bar, and secured at the median slit in the top of the vertical stem of the instrument. Many surgeons, Sédillot truly remarks, have imitated Deschamps and described nearly similar compressors, which, we are told, by the same surgeon likewise, have been abandoned. Their discontinuance has been attributed by him to their liability to excite irritation in wounds, that may lead to ulcerous inflammation of the artery.

To me this does not appear extraordinary, considering the large size of several of those immediate compressors, and the additional danger incidental to the use of some of them—that of

Deschamps, for example. Let us assume that it has been applied to an artery situated at some depth from the surface; there is nothing to prevent either inflammatory exudation or soft tissues from entering the spaces between the vertical stem and the ligature, that may lead to such difficulty in its removal, great mischief may ensue. Moreover, the length of the horizontal bar, with the ligature stretched between its ends and the slit, separate structures from the compressed vessel, which it is of great consequence should be in contact with it.

Possibly the little instrument I am about to describe will be as short-lived as those just mentioned, yet, being when in use free from risk, excepting the risk common to all immediate compressors for arteries, it may meet with some favour.

Whether or not acupressure even, is destined to supplant the ligature time alone will decide. However, he must be very prejudiced indeed, who will not admit that the ligature acts often as a seton, maintains suppuration, and thus prolongs the chances of blood-poisoning, provided, as so many believe, that pus in contact with raw surfaces has great influence in the development of this unhappy sequela.

The action of the ligature as a seton was exemplified in Robert S., in whom a ligature did not separate from its vessel until the lapse of several days after the femoral artery ligature had been removed, during which time pus drained constantly from its track; and it appeared on one occasion to have been the cause of phlegmonoid suppuration.

The tubular *presse-artère*, being suitable only for the immediate compression of vessels, has not so wide a range of usefulness as acupressure. But it appears to me to have a very decided advantage, especially when applied to a large vessel, inasmuch as it can be used so as not to compress any structure excepting the vessel.

Being completely under the control of the surgeon, compression by its means can be graduated to a nicety, and it can be removed from a vessel with great facility.

Before describing the *presse-artère* I should mention that I borrowed the idea of it from one of the instruments in use for the extraction of small calculi from either the urethra or bladder.

Description of the Tubular Presse-artère.—It is composed of:—1. Either a fine silver or German-silver tube, to the upper end of which a small milled button is soldered. The button facilitates the turning or screwing of the tube by the fingers of the surgeon. A female screw is formed upon the upper half of the inside of the tube. 2. A steel stem having two jaws at its lower end. The jaws are perfectly smooth both on their opposed and on their outer surfaces, and have no cutting edge. They are so arranged as to allow of their opening and closing parallel to each other. At the upper end of the stem there is a handle-nut, hexagonal only in shape, but for recognition in wounds the handle-nut of the *presse-artère* for large arteries should have some other form when more than one instrument is in use. The nut is fitted to the stem by means of a square mortice, that it may not turn on the stem during either screwing or unscrewing of the tube, and is secured in its place by a smaller, also a screw, nut. The upper half of the stem has a male screw cut upon it, for adaptation with the female screw of the inside of the tube. It is not essential that the tube should have the female screw, for it may be made to slide only, being pushed home by the playing of a separate screw-nut between it and the larger handle-nut. There is less chance, however, of unnecessary disturbance of the vessel during removal of the *presse-artère*, if the tube screws upon the stem, whereby a steady and an even motion is secured, so essential for the safe working of the instrument.

The length of the *presse-artère* should be regulated by the size of the limb, the vessels of which it is intended to compress.

In the case of James B., after I had placed a *presse-artère* on each of the vessels, I imitated, to a certain extent, the method of acupressure by the twist, *presse-artères* having been substituted for the needles. Thus, the *presse-artères*, with their vessels, were semi-rotated, a moderate amount of torsion being thereby insured. Not being satisfied, however, that any benefit results from the manœuvre, I have not repeated the twist in any subsequent operation.

The following advantages may be claimed for the tubular *presse-artère* over other instruments for the immediate compression of arteries :—

1. The smallness of the space it occupies in comparison with that required for Deschamps and for some other *presse-artères.*
2. Facility of application and of removal without the risk of unnecessarily disturbing the vessel.
3. Accurate graduation of the compression by means of the *fine* screw arrangement, which likewise prevents the jaws of the instrument springing suddenly off the vessel during the unscrewing for its withdrawal.

Through an unintentional oversight in my original description of the *presse-artère*, in the Medical Times and Gazette, no allusion is made to the forceps for the compression of arteries, described by Mr. Nunneley. (See *Retrospect*, vol. lvi., p. 248.)

Mr. Nunneley's forceps, however, being spring-forceps, I do not regret having published the account of the tubular *presse-artère*, believing, for the reasons just mentioned, that a *presse-artère*, having the jaws under such command as the screw affords. can be worked with facility and safety.—*Dublin Quarterly Journal, Nov.* 1869, *p.* 458.

132.—THE TREATMENT OF CLUB-FOOT BY DIRECT EXTENSION.

By Jolliffe Tufnell, Esq., Surgeon to the City of Dublin Hospital, Examiner to the Royal College of Surgeons, Ireland.

A writer upon orthopedic surgery remarks that "the practitioner, in the exercise of this art, should be, as far as possible, independent of extrinsic aid." The means which I am about to advocate duly fulfil this end.

In the treatment of talipes the main point to be attended to is the drawing down and fixing of the heel.

The shoes of Scarpa, the foot-splints of Stromeyer, and all the complicated apparatuses which from time to time have been introduced, as possessing peculiar advantages, have each had, as the object in view, the acquirement of a point *d'appui* or fixed centre from which the removal of the deformity might be commenced, and the restitution of the foot to its normal position begun.

It matters not as to whether the tendons implicated in each special instance be or be not divided (so far as instrumental aid is concerned), for the ultimate object to be attained is the same in either case, viz.: the removal of the distortion; and the simpler the method by which this can be effected the better.

I have in the course of practice used many of the various instruments made and sold for this purpose, and with each and all I have found the same objection to exist, namely: that the heel, especially in a very young patient, soon becomes retracted, and the foot to a great degree misplaced; and that instead of occupying the position into which it has been carefully and apparently effectually placed a few hours before, it is, when examined, found to be shifted and changed, the toes only continuing to be confined to the foot-board of the splint.

This practical defect led me to employ for the drawing down and fixing of the heel the simple mode of extension by adhesive plaster, first (I believe) suggested by Dr. Crosby, of the United States, and since generally adopted in cases of fracture of the thigh.

Its superiority over any other mode of treatment that I have seen employed in club-foot is such as to induce me to bring it before the notice of the readers of this Journal, believing that it may be of use to many, especially in provincial practice, and establish that the employment of elaborate and complicated instruments may in nearly every instance be avoided.

I am myself an advocate for tenotomy in talipes, in its various forms, and for the full division of all the tendons engaged; but whether tenotomy be resorted to or not the after-treatment in restoring the foot by mechanical means remains the same; and this is the point to which I wish to call attention, and the extreme efficiency with which the majority of cases can be treated by means of a simple iron splint, aided by Crosby's sticking plaster straps.

Two broad straps of adhesive plaster must be fixed one on either side from the knee to the malleoli, and hanging free for twelve inches below, these straps being confined in their places and prevented from slipping when drawn upon by two or three circular straps encompassing the leg, but at the same time avoiding all constriction of the limb.

Soap plaster is preferable to the ordinary sticking or resin plaster in this respect, that it is less irritating to the skin, and less likely to excoriate—a point of the utmost importance, especially in the newly-born child; and the treatment here recommended can hardly be begun too soon.

The sticking plaster being thus applied to the patient's limb, the heel drawn down thereby, must be firmly fixed to the foot-piece of the common iron foot-splint with its requisite slits in the foot-piece—the posterior for the heel, the middle and anterior for the straps that pass over the tarsal and metatarsal bones. By merely knotting the ends of the plaster after being brought through the posterior slits over an ordinary bottle-cork, flattened upon one side, the anterior portion of the foot being spread out and confined in position, as the progress of the case will permit, due care being taken in every instance not to employ any great degree of force, but simply, as it were, to coax down the distorted foot into its natural shape and position, as for progression in after life.—*Dublin Quarterly Journal, Nov.* 1869, *p.* 496.

133.—ON THE TREATMENT AND CURE OF VARICOCELE BY SUSPENSION OF THE TESTIS.

By John Morgan, Esq., Surgeon to Mercer's and the Westmoreland Lock Hospital, Dublin.

The treatment of varicocele and the many inconveniences accompanying it has always received much attention from the surgeon. Owing to the nature of the configuration of the parts concerned, the difficulty of making pressure, or of influencing the condition of the vessels, perfect and manageable palliative treatment is difficult of application. The contraction of the scrotum by the use of the flexible ring, or by the method of removing a portion of it, has not been found as successful as might have been anticipated, while the application of pressure by means of a truss is often extremely inconvenient and unbearable, though occasionally, after many months' use, eventually producing a cure. No doubt the chief cause of non-success in these cases was allowing the dependent condition of the testis to continue, and the anatomical arrangement of the vessels to remain unchanged. With a view to effect not only great palliation of the symptoms, but also to obtain a gradual and permanent cure, I have found a plan of suspending the testis the most efficacious and endurable. The vertical direction of the current of blood, specially on the left side, proves the great difficulty to be contended with, and the support of a contracted scrotum, or of a suspensory bandage, will, of course, not influence this, while the pressure of a truss, though retarding the blood current, does not give any immediate support to the testis itself, and the wearing of it is often extremely irksome and painful.

The plan of suspension I propose in the first place supports equally the testis and the distended veins, acting as an elastic stocking does to the leg, and then allows an easy suspension of the organ. It brings the veins into an inverted position, and directly relieves them from over-distension, and the blood current is more materially and effectually regulated by doubling the vessels as it were round the inguinal ring. The testis is placed in the "suspender," which consists of a piece of web about 3½ inches wide at one end, 4½ inches long, 4 inches wide at the other, and cut, gradually tapering to the narrower end. A piece of thick lead wire is stitched in the rim of the smaller end, and the sides are furnished with neat hooks, a lace, and a good tongue of chamois leather, two tapes being sewn along the entire length of the web, which are afterwards attached to the suspending belt. The application is easily made by the patient in the morning before rising, and when the parts are relaxed, laying the affected organ, while in the dependent position, in the "suspender," and lacing up the hooks with a moderate degree of tightness, then raising it up and attaching the tapes to the suspending belt previous to rising from bed.

The size of the "suspender" must, of course, vary more or less, but the measurements named will suit an ordinary case; the lead wire encircling the lower end, gives a foundation to the general means of support, and keeps the testis within the suspending bag, the patient can mould it more or less to his convenience. Of course, as in every appliance of the kind, a certain amount of discretion must be used as to wearing of the suspender for the first few days; it should not be kept on constantly; the parts should be sponged night and morning with cold water or a cold lotion, used so as to fortify the skin, as any chafing must be avoided—in all cases the suspender is best omitted at night. So great is the convenience afforded that the gentleman from whose case the illustration is taken is now shooting in Scotland, able to enjoy himself and go through a day's hard walking without inconvenience, the suspension of the testis affording him such relief.

An hospital case treated during the summer also shows the great adaptability of this method—the patient being a railway porter, and in the habit of carrying heavy weights, yet he is able, by aid of the suspender, to pursue his business without inconvenience. In another instance of a groom, in the habit of riding, a similar relief was speedily obtained.

In cases of specific orchitis I have also found the suspender give immediate relief, the testis being first wrapped round with lint steeped in tinct. opii—the bag is gently and neatly applied, and then raised by means of the straps, after one hour or so it may be a little more raised, till finally it is vertical. The relief from pain in most cases is immediate, and the compression is equable, the weight of the testis is taken off by the "suspending" sac, which should always be made of web or some open-worked material to allow of coolness and prevent any unnecessary irritation or chafing of the skin.—*Dublin Quarterly Journal, Nov.* 1869, *p.* 490.

134.—OBSERVATIONS ON SOME POINTS CONCERNING THE REDUCTION OF DISLOCATIONS.

By Dr. Francis R. Cruise, one of the Surgeons to the Mater Misericordiæ Hospital, Dublin.

In the year 1861, I published in the Dublin Hospital Gazette, some observations on the reduction of dislocations, together with the description of a new extending apparatus. In that paper I entered at some length into the description of various appliances which have been used for the purpose, estimating, to the best of my ability, the value of each. Subsequent experience has confirmed me in the views then put forward, and which I will now briefly recapitulate.

Making due allowance for the large number of cases in which reduction is facilitated by chloroform and "manipulation," it remains beyond question, that a certain proportion cannot be managed without forcible extension. The question then arises: How can forcible extension best be made? I think I have demonstrated in the paper referred to that it can best be accomplished by means of an endless screw windlass. The tractive force thus obtained possesses the requisite qualities. It is *powerful*, so as to overcome the resistance of opposing muscles; it is *gradual*, and thus wearies out these muscles rather than violently counteracts them; it is *easy of application*, does not embarrass or fatigue the operator, and is *constant and unvarying*, except at his will.

The instrument which I described and illustrated in my paper possessed all the desired qualifications, and gave the utmost satisfaction in operation; nevertheless, it was open to a serious practical objection, namely, being made in wrought metal, it was very expensive. This circumstance debarred it from general use. I have since spent some time endeavouring to mend this fault, and I trust I have succeeded. The windlass which I now wish to introduce to the notice of the profession is as efficient and manageable as the original one; but, being manufactured from carefully made models in malleable cast-iron, it can be purchased at a small price.

I am much indebted to Mr. James Kennan, of the firm of Kennan and Sons, Fishamble-street, Dublin, for the pains he has taken in carrying out my designs, and for the valuable practical hints he has given me.

The instrument is now to be had from Messrs. Fannin and Co., 41, Grafton-street, in this city.

It consists of a drum upon which a rope is gradually wound up. The hook at the free extremity of this rope is attached to the gear wherewith the limb is grasped, and the windlass is secured to some fixed point by the loop. The drum is rotated by the revolution of an endless screw, acting upon cogs cut on its edge, the screw being moved by a handle. According as the rope is shortened so is extension made, and with such power that with one hand a force of two hundred weight can easily be applied. To facilitate adjustment of the length of the rope to the requirements of each case, the endless screw can be shifted from contact with the edge of the drum, and the latter, being then free, can be wound or unwound without delay. The moment force is required the screw may be shifted back to place.

I have frequently used this windlass myself at the Mater Misericordiæ Hospital, and am satisfied of its efficiency. Lately, it has been tested by Dr. Robert Macdonnell, at Steevens' Hospital, and by Dr. Robert P. White and Dr. Corley, at Jervis-street Hospital, and has given entire satisfaction.

In all instances, I use the dynamometer, which I recommended in 1861. Independent of the security it affords against the application of excessive force, it encourages the operator *slowly to tire out* the opposing muscles with the *minimum of traction.* I was not aware, in 1861, of the extent to which this economy of force may be carried out, but since then I have thoroughly realised it. I think I may safely say, that, by allowing proper time for the muscles to yield, any moderately recent luxation, uncomplicated by organised adhesions, may be reduced with one-half the force formerly used. Some years ago, I often applied over 150lbs. pressure; but, latterly, I rarely exceed 60lbs. I need not observe how much risk of damage to the tissues is thus avoided.

I will quote two cases in illustration :—

Case 1.—I happened to be in the Mater Misericordiæ Hospital in the middle of the day, January 8th, 1867, when a very powerfully built young man came in with a recent subcoracoid luxation of the right shoulder The patient was too muscular to justify expectation of reduction by simple manual effort; therefore I placed him on his back, on a mattress laid on the floor of the hospital theatre, and made extension with the windlass in the direction of the spine of the scapula. When the dynamometer indicated 60lbs., I delayed, sustaining that pressure for ten minutes. At the end of this time, finding that the head of the bone had cleared the edge of the glenoid cavity, I suddenly released the extension, and placing my heel in the axilla, carried the arm across the chest. The head of the bone at once slipped into place, with an audible snap.

Case 2.—Patrick Flanagan, aged 38, entered the Mater Misericordiæ Hospital under my care, February 27th, 1867, with subcoracoid luxation of the right humerus. The accident had occurred the previous evening from a fall on the shoulder. The man had endured great pain all night, and was still in much suffering. Placing him similarly to the last patient, I applied extension in like fashion. After twenty minutes, the dynamometer indicating only 30lbs., the head of the bone slipped into place.

Before concluding, I may just mention a few contrivances which I have found serviceable, under trying circumstances, in the reduction of luxations.

I may observe, in the first place, that in the majority of instances, the recumbent position is the best for the patient, and I prefer laying him on a mattress on the floor. In certain cases of dislocations of the elbow it is better to place him sitting on a chair.

Next, it is often difficult. unless in an hospital theatre, to find available fixed points to which extending and counter-extending apparatus may be attached. It is rare, however, not to find substantial wood-work, and a screw-ring which can be easily driven into it is invaluable. The screw is so sharp that it will penetrate any wood-work, and once inserted, it resists any amount of traction.

For a counter extending band, I think a rolled sheet equal to any, and always at hand.

The mode of grasping the limb is a very important point. For myself I prefer the worsted skein, put on in single or double clove-hitch, the part being protected by a wrapping of moist chamois leather.—*Dublin Quarterly Journal, Nov.*, 1869, *p.* 485.

135.—THE TREATMENT OF NÆVUS.

By Henry Bateman, Esq.

I am desirous of calling attention to a mode of treating nævus which I have now successfully adopted for about fifteen years. It consists in the application of a tartarised antimony plaster to the surface of the tumour, and allowing it to remain until pustules resembling small-pox are produced, and sometimes still larger. The plaster I have used is ordinarily made by having one part of antim. tartarizatum mixed with two parts of melted empl. resinæ, and then spread upon thin leather or linen. It ought to cover the entire nævus completely, but need not extend beyond it. If it be detached from any cause before it has produced a sufficient amount of inflammation and pustulation it should be renewed immediately. If there be too much inflammation, poultices and fomentations of warm water may be applied. Should the skin be unusually insusceptible, or nævus unusually thick, equal parts of tartarised antimony and resin plaster may be used.

With comparatively thin nævi the former strength is amply sufficient, and sometimes a single plaster will produce inflammation and pustulation enough to effect a cure. Should the nævus be thicker than usual the stronger plaster may be used, and it may be repeated again and again until the nævus sloughs.

My neighbour, Dr. Glover, has seen many of these cases of nævi with me. Amongst others a child named Alice Charlotte H., who had twenty-five nævi on various parts of the head, trunk, and extremities, all of which were cured by the use of emp. antimonii tartarizati.—*Lancet, Nov.* 6, 1869, *p.* 660.

136.—CURIOUS EXIT FOR A PIN, WHICH WAS SWALLOWED FOURTEEN MONTHS PREVIOUSLY—RECOVERY.

By Dr. Francis McEvoy, Balbriggan, Ireland.

An extern patient was brought to the dispensary by his mother, who informed me that her son was about 13 years of age, that he lately complained very much of a pain in his stomach which made him cry, and it usually attacked him when he bent forward with his chest against the table, as in writing and learning his lessons. At such times he suffered from a shooting pain, as if something suddenly darted into his stomach. His appetite was excellent, he slept well, and enjoyed good health in every other respect, was cheerful and lively, but latterly seemed unwilling to play with other boys as he used to, and said that he was afraid of their hurting his stomach. At first his mother was inclined to attribute it to worms, as he had passed some at various times, and had even thrown up one or two by mouth. Then to his having taken a dislike to school and study; that idea was untenable, as he evinced the greatest anxiety about learning. I examined him carefully, and questioned him closely as to feeling and health; he complained of but one thing, a pricking sensation when he bent forward against anything. Upon the closest examination I could detect nothing to account for the feeling he had. I therefore looked upon it as one of those obstinate cases of worms which are sometimes met with, and will baffle the most skilful to cause their expulsion. I gave him some pulv. santonine, with various other vermifuges, and although he expelled half a dozen large worms, yet he obtained no alleviation of the symptoms complained of.

Having tried various remedies without effect, I recommended his mother to try further advice, or get him into hospital, which she did. In about six months afterwards she came to me again, having in the meantime brought him to various medical men, and having had him in two hospitals without deriving any benefit; but, on the contrary, he evidently became worse,—to request that I should go and see her son, as he was getting a lump like a boil just over his stomach where he formerly had the pain, which was gone since the lump had made its appearance. I was very much surprised to see him reduced in so short a time from a fine, plump, healthy looking boy, to a mere skeleton—so emaciated had he become that I did not know him.

On examining the lump it proved to be a small abscess fully developed. His mother informed me that about three weeks ago, he began to complain of his trowsers hurting him, and that on examination, she found a fulness and a circumscribed hardness, which day by day became red and soft, and so sore that he was obliged to take to his bed altogether for the last fortnight.

I at once opened it, and, whilst doing so, became aware that the point of the lancet came in contact with a hard substance. I immediately, before the matter was all discharged, passed a bulb-pointed silver probe into the abscess, and struck something that grated against the instrument. By working it backward and forward, I managed to get the point towards the opening, seized it with the forceps, and extracted a pin the cause of all his ills. About fourteen months previously he swallowed a pin, which he recollected the moment he saw it. He recovered rapidly and in a very few weeks regained his former health, strength and spirits. He has since emigrated to America. I was one day paying him a visit, and asked him how he happened to swallow the pin. He told me that one day coming from school, he picked up that very pin, and put it into his mouth. Another boy tripped up his heels, and he got rather a severe fall. He could not at the time say whether it fell out of his mouth or not, but did not recollect having swallowed it.—*Medical Press and Circular, Aug.* 4, 1869, *p.* 97.

137.—EXIT OF A PIN SWALLOWED FIVE YEARS BEFORE.

By Alexander Chain, Esq., Liverpool.

On the 4th of June I was requested by Mr. W. to see his daughter, a fine healthy looking girl, aged fourteen years. On inquiry I ascertained that for some eight or ten days previous to my visit she had suffered considerable pain in consequence of the formation of an abscess on her back, situated a little above and internal to the inferior angle of the right scapula. When I saw her the pain had almost subsided; fluctuation was readily detected, but there was no appearance of pointing. A sharp-pointed bistoury was pushed into the softest part, and about an ounce of healthy pus escaped.

On sponging the part before applying a poultice, I discovered a foreign body lying obliquely across the aperture. I seized it with a pair of forceps, and, to my astonishment, extracted a pin. The mother, who was standing close by, on seeing this instantly exclaimed, "Doctor, that's the pin she swallowed five years ago." This is another instance of a foreign body, without producing the slightest inconvenience, remaining in the system for years before making its way to the surface.—*Medical Press and Circular, Aug.* 4, 1869, *p.* 97.

138.—PLAIN RULES FOR THE RESTORATION OF PERSONS APPARENTLY DEAD FROM DROWNING.

By Professor B. Howard, New York.

Rule 1.—Unless in danger of freezing, never move the patient from the spot where first rescued, nor allow bystanders to screen off the fresh air, but *instantly* wipe clean the mouth and nostrils, rip and remove all clothing to a little below the waist, rapidly rub dry the exposed part, and give two quick, smarting slaps on the stomach with your open hand. If this does not succeed immediately, proceed according to the following rules to perform artificial breathing. Rule 2.—Turn the patient on his face, a large bundle of tightly rolled clothing being placed beneath his stomach, and press heavily over it upon the spine for half a minute Rule 3.—Turn the patient quickly again on his back, the roll of clothing being so placed beneath it as to make the short ribs bulge prominently forward and raise them a little higher than the level of the mouth. Let some bystander hold the tip of the tongue out of one corner of the mouth with a dry handkerchief, and hold both hands of the patient together, the arms being stretched forcibly back above the head. Rule 4.—Kneel astride the patient's hips, and with your hands resting on his stomach, spread out your fingers so that you can grasp the waist about the short ribs. Now throw all your weight steadily forward upon your hands, while you at the same time squeeze the ribs deeply, as if you wished to force everything in the chest upwards out of the mouth. Continue this while you can slowly count—one, two, three; then *suddenly* let go, with a final push, which springs you back to your first kneeling position. Remain erect upon your knees while you can count—one, two; then throw your weight forward again as before, repeating the entire motions—at first about four or five times a minute, increasing the rate gradually to about fifteen times a minute, and continuing with the same regularity of time and motion as is observed in the natural breathing which you are imitating. Rule 5.—Continue this treatment, though apparently unsuccessful, for two hours, until the patient begins to breathe; and for a while after this help him by well-timed pressure to deepen his first gasps into full, deep breaths; while the friction of the limbs, which should if possible have been kept up during the entire process, is now further increased. Rule 6.—After-treatment—externally. As soon as the breathing has become perfectly natural, strip the patient rapidly and completely. Enwrap him in blankets only. Put him in bed in a room comfortably warm, but with a free circulation of fresh air, and except for the administration of internal treatment, let him have perfect rest. Internally: Give a little hot brandy and water, or other stimulant at hand, every ten or fifteen minutes for the first hour, and as often thereafter as may seem expedient. We must refer the reader for other particulars to the pamphlet.—*Med. Times and Gazette*, *Sept.* 18, 1869, *p.* 369.

139.—ON A NEW SYSTEM OF ABSCESS DRAINAGE BY SPIRAL WIRE TUBES.

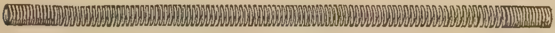
By Robert Ellis, Esq., Obstetric Surgeon to the Chelsea, Brompton, and Belgrave Dispensaries.

It is about eight years since a lady applied for relief for great pain and tenderness over the pubes and the hypogastrium generally Her febrile condition, loaded tongue, and cachectic aspect led me to suspect, in connection with these symptoms, the existence of some collection of pus in or near the uterus;

and on vaginal examination, I found this organ distended with fluid, and the cervix absolutely impervious. Fixing the cervix, I passed a long trocar throughout its length, and gave exit to nearly half a pint of horribly fetid pus. But since this condition of things could not be allowed to repeat itself, it then occurred to me that if I could devise some very flexible tube the sides of which could not be compressed so as to make it impervious, and if it could be retained in the cervical canal, good service would be thereby rendered. My first attempt was with tubes of caoutchouc; but these were quite useless, for the least angular bend stopped them up, and their elastic walls yielded at once to a very slight pressure from without. I then tried a tube made of soft tinfoil; but in the tubular form this metal became quite rigid, and, if bent, the tubes were as apt to become closed up as the others. The idea then occurred to me to make a tube of very fine hard brass wire, by coiling it regularly and evenly over a fine steel rod. The tube was readily made, and its success was perfect. It was elastic in the highest degree; it could even be tied into a knot without destroying its patulousness; its flexibility would follow the wanderings of any sinus, however crooked; and its sides, being slightly open, permitted the secretions of the cavity it penetrated, and the canal in which it lay, readily to pass through. I procured several of these, of different lengths and sizes, and, fitting one of them to the artificial canal made in the cervix uteri, I had the satisfaction of seeing it day by day drain the diseased uterine cavity of its pus; and in a very little time the patient made an excellent recovery, and has since continued perfectly well.

The success of this system of drainage led me to apply the same tubes to a variety of other cases; and I hope shortly to publish some account of their remarkable value, especially in cases of dysmenorrhœa arising from mechanical obstruction of the cervical canal. I have also successfully used them, in some displacements of the uterus, for rectifying the bent state of the cervix which frequently accompanies these malpositions; and in a very opposite class of cases to those of the dysmenorrhœal type—viz., the menorrhagic,—in which they have done valuable service in affording a safe and certain outlet for intra-uterine injections. It is to the approval of Mr. Paget of the application of these tubes to the drainage of deep chronic abscesses generally that the idea of submitting them to the readers of the Lancet is chiefly due.

These tubes, as I have mentioned, consist simply of a closely wound coil of wire, resembling exactly the springs used by dentists for supporting artificial teeth, or those used by bell-hangers to preserve the due tension of their wires. They are simply spiral springs made of brass or copper wire, of different degrees of tenuity and elasticity. In obstetrical practice I employ only the very fine hard brass wire, the finest I can procure; and I find this makes the best tubes for my special purposes. But for ordinary abscesses in other regions of the body very fine copper wire may be used; it is softer, and exerts very little strain on the tender structures through which it has to pass. It is also finer than the other, and thus can be adapted to long, narrow sinuses, to every bend of which the tube will easily accommodate itself. It is a mere superstition that the copper or the brass do any mischief as metallic substances to the canal in which they lie, or constitutionally. I have used hundreds of these tubes without the smallest evidence of harm due to the metals of which they are composed. But, if it be thought desirable, they may be electro-gilded in a few minutes by plunging them in a hot solution of cyanide of gold, with the aid of a battery and a piece of gold foil.



The manufacture of the tubes is thus managed; and its extreme simplicity ought to enable every surgeon to make them without recourse to the instrument maker. I have always made my own, and thus exactly adapted them to the peculiarities of the individual case. If the surgeon possess a common lathe, they may be made, literally, in a minute. But they can also be made by hand, only they are less even and neat in appearance. I take (for the lathe) a number of common knitting needles of different sizes, cut off the required length, square one end of each after tempering it down in the flame of a candle and "centre" the other. This forms the tool or "maundrill," on which the wire is to be coiled. Being fixed in a chuck at one end, and adapted to the lathe-centre point at the other, it is ready for work. The wire is fastened to a pin in the chuck, and the lathe is put in motion: the slow motion is used. The wire, being firmly held in the hand, is drawn by the revolution of the axis upon itself, and thus coils itself automatically, and by a very few revolutions of the wheel the tube is finished. When made "by hand," the steel rod must be firmly fixed at one end in a vice, and the wire then slowly and carefully wound round it to the desired length. Very good tubes can be made in this way, though it is inferior to the other. By a strong pair of scissors or a wire nipper, the tubes can be cut to any size. In order to make them very flexible, it is better to draw them out a little at each end; the spirals are thus slightly separated from each other, and the walls of the tube by this means readily permit the percolation of pus or other fluids to go on through their sides. Care must be taken to bend in slightly the terminal coil of the tube, so that the point of the wire may not catch in the tissues through which it is passed.

Their method of application is as follows:—For the uterine cervical canal it is necessary to fix the cervix by a tenaculum, and gently to pass up the tube mounted on a uterine sound; the free end then lies in the upper part of the vagina. It is useful to slip a morsel of vulcanised tube over this free extremity, so as to prevent it abrading the posterior vaginal wall. For an ordinary abscess they may be introduced on a probe or director, and often without any such assistance, by a spiral, coaxing sort of motion. They are retained easily *in situ* by tying a piece of silk over the free end, and fastening this to the skin by a strip of adhesive plaster. A loose soft pad of cotton wool should then be placed over the tube. and it will be found to do its work with the greatest regularity until the abscess ceases to secrete any more pus.

As in the tracheotomy tubes, it is convenient to have a double tube in many cases, the inner one being a size or two smaller than the outer. This may be withdrawn and cleansed, and then replaced. They will require changing generally about once a fortnight, but I have seen no harm arises from a much longer stay.

I do not propose to encumber the pages of the Lancet with a recital of the many cases in which I have found these tubes render invaluable service. I believe the drainage system here introduced to be so simple and practical that no surgeon who once takes to its employment will be disappointed with the results; but if there be any point requiring further explanation, I should be happy to give it to any medical man who may wish for it. The following note of Mr. Paget's will probably induce some of my professional brethren to give this plan of drainage a fair trial.

"Dear Mr. Ellis,—I have now used your spiral-wire drainage-tubes in cases sufficient to prove to me that they have these following advantages over any other means of drainage that I have yet seen:—

"They can be placed in sinuses of very small diameter, and with equal advantage whether the sinus have one or more openings.

"Their bore is not diminished by bending them to any angle.

"They cannot be flattened or shut up by contraction of the orifice of the sinus.

"They can be inserted with very great facility; and can be worn for any length of time, in fit cases, without causing irritation.

"They are cleanly, and excite no decomposition in pus or other fluids. "Sincerely yours, "JAMES PAGET."

It may be convenient that I should add that the tubes may be procured, of various sizes and lengths, from Messrs. Mayer and Meltzer, of Great Portland-street, W.—*Lancet, July* 24, 1869, *p.* 115.

140.—CURE OF SEA-SICKNESS.

Dr. DWINELLE, of New York, publishes an account of a method of treating sea-sickness, which he saw employed, by Dr. Le Coniat, of the French navy, with remarkably successful results.

The skin over the stomach is moistened with a solution of sulphate of atropia, in the proportion of a grain to an ounce of water. A flat disc, forming the negative pole of an ordinary volta-electric apparatus, is applied over the pyloric end of the stomach. A sponge attached to the positive pole is passed, for three or four minutes, from the cardiac towards the pyloric end, varied by being occasionally passed downwards. The application is not painful, and is generally followed by refreshing sleep.

In a stormy passage from Brest to the United States of America Dr. Dwinelle, who suffered much from sea-sickness, was treated in this way by Dr. Le Coniat, with great benefit; and in every instance in which he saw the remedy applied great and immediate relief followed, and generally a complete cure.—*New York Med. Journal, Jan.* 1869, p. 390.—*Dublin Quarterly Journal, May* 1869, *p.* 417.

141.—SWIMMER'S CRAMP.

[When a case of this distressing accident occurs the man suddenly cries out, sinks at once, and is no more seen until his dead body floats ashore some hours afterwards.]

How is this terribly sudden drowning to be explained? The victim is generally said to have been attacked by cramp, and manuals advert to the subject, and direct the swimmer who is so seized to thrust his leg out violently, and forcibly bend his foot upwards. The explanation seems to be generally accepted, but it does not really explain this awfully mysterious sinking. We do not need to ask a good swimmer whether cramp in the leg, however severe, would cause him to sink suddenly, and without a struggle, in the sea. It is impossible. The human body is specifically lighter than water, and so much lighter than sea-water that no effort is required to preserve it from sinking in that fluid. A swimmer seized with leg-cramp would instinctively throw his head as far back as it would go, conscious that he might remain afloat in this position without the need of moving a muscle. The unfortunate swimmer who drowns under these circumstances, always goes down suddenly, and without a struggle. This signifies that the body suddenly becomes heavier than water. It can only do that by losing the air which is contained within the cavity of the chest, and the probability seems to be that the cramp which happens is a cramp of the respiratory muscles, by which the expansion of the lungs is prevented or their air forced out. Death would then occur as it often takes place in tetanus. This is a subject which has strangely escaped observation. Inquiry must, of course, be limited, for there is no opportunity of questioning the unfortunate victims; but the testimony of observers, or of those who have themselves experienced any kind of cramp in bathing, might be usefully brought to bear upon it. The feeling of insecurity which these cases occasion to swimmers is terrible. Could we but ascertain the exact circumstances, it is conceivable that some measures might be devised by which their occurrence could be prevented. It must be remembered that swimming implies a very much more violent muscular exercise than is apt to appear. It seems probable—though it is by no means certain—that the muscles of respiration, which are powerfully employed in swimming, may occasionally be seized with cramp as a result of unusual exertion, with the effect we have described of causing compression of the chest. If such be the case, it is tolerably certain that regular and graduated gymnastic exercise would be the surest safeguard against an affection of muscles arising from their being suddenly called upon to perform unusual exertion of severe character.—*Lancet*, *Sept.* 4, 1869, *p.* 349.

142.—THE WIMBLEDON CAMP AND THE EARTH-CLOSET SYSTEM.

By John Wyatt, Esq., Surgeon-Major, Coldstream Guards; and Surgeon to the National Rifle Association.

The best method of deodorising and disinfecting the excreta of such an encampment as that of Wimbledon has formed the subject of several communications which have lately appeared in the Lancet, and particularly with reference to the efficiency of the dry-earth conservancy, all of which I have had the advantage of carefully perusing and reflecting on; for the whole question involves a very anxious consideration for myself, as the responsible medical officer of the National Rifle Association. Last year was the first on which the Council determined to adopt Moule's system of earth-closets, and, with the exception of two days, nothing could have been more efficient than the working of them, although, on account of the unprecedented amount of diarrhœa, they were in unusual demand. It has been attempted to be proved by one writer that the dry earth is not a disinfectant, though it may be a deodoriser ; and the comparison of the rattle-snake without the warning of the rattle being none the less a venomous reptile, has been quoted to prove that deodorisation of dry earth does not necessarily imply neutralisation of the pernicious products. No doubt an open enemy is more desirable than a concealed one ; but perhaps, after perusing the report on the dry-earth conservancy system in the Madras Presidency, a more favourable notion will be entertained of its applicability, especially for encampments, barracks, gaols, &c., where many people are congregated in a more or less confined space. I have always been strongly of opinion that if the dry-earth system be *efficiently* worked it is capable of proving both a deodoriser and a disinfectant of human excreta.

Let us compare results, and especially a little in detail, by the light of the Indian Report recently received. In the Madras Presidency the application of the dry-earth system extended over a period of four years. It was proved that pure clay possesses large deodorising powers, seven pounds being equal to seventeen pounds of the best earth found near Madras, and that two pounds were capable of absorbing one pound of water or urine ; and the conditions necessary for the efficient working of the system were dryness, immediate application, and sufficiency in quantity. There was a difficulty about the urinals, owing to the enormous quantity of earth necessary to be used for complete deodorisation ; and in wet weather means must be resorted to for drying the earth.

The essential condition of success in the Madras report is stated to be, that the earth should be as dry as possible, and that it should be stored in a roofed building to prevent the contact of rain ; that all ordure should be completely deodorised before it is buried, when it can no longer undergo putrefactive fermentation, or disengage any of those noxious gases which are perceptible to the senses and injurious to the health of those exposed to their influence. The objection to the earth system is represented to be—the great cost of procuring earth for daily use, and of its removal, while, on the score of economy, that by sewers is preferable ; but when a good system oi drainage and water supply are deficient, the system of dry-earth sewage is doubtless the best means available for thorough amalgamation with the excreta. It is well known that if the acidity of the urine can be maintained, decomposition will not result, and as M'Dougall's disinfecting powder contains carbolic acid, in association with sulphurous acid, lime, and magnesia, the results are very favourable ; but the coal-tar acids have higher disinfecting powers. Chloride of lime, one of the strongest of the class of deodorisers, reacts only on the gases of existing putrefaction, but has no influence on the future. Carbolic acid has scarcely any action on fetid gases, but it attacks the cause which produces them, and at the same time combines with the organic matter in such a way that it never reacquires its tendency to putrefy ; it acts by destroying vitality, and the use of it tends to remove the objection to the deposit of sewage in pits, not only by arresting decomposition, and rendering it incapable of taking on any further action of that nature, but by admitting of its immediate disposal on grass land, soldiers' quarters, or farm lands. It is undoubted that earth and feculent matter may be kept in a dry state for long periods without putrefactive changes setting in ; but if water gains access to it decomposition occurs. Buried in pits, and covered over, it is free from smell at the expiration of six months ; and it may be considered as certain that dry earth has the power to render decomposition in excrementitious matters dormant, and to keep latrines and urinals inodorous. But certain conditions are necessary for its effectual action, these being, as before stated—1, dryness ; 2, application in sufficient quantity ; 3, immediate application ; 4, reduction to powder ; 5, selection of a suitable earth.

The quantity necessary to deodorise the daily evacuations of a healthy adult is about two pounds and a half, and about six pounds and three quarters for the daily urinary excreta, assuming it to be about thirty ounces in the twenty-four hours ; but coal-tar should always be applied to the utensils used. This large quantity of earth for the deodorisation of urinals must always impose a great difficulty to its application, therefore it is recommended that they should be treated by M'Dougall's disinfecting powder only. It is calculated that the cost of latrines alone, without urinals, is about £300 per annum for a regiment of 1000 men, and if employed for urinals it would be £120 more. When the excreta are buried in the earth, the mass is liable to give out offensive vapours in damp weather, and when a small quantity of the deodorised and buried excreta is taken up, and diffused in water, it is found to teem with various forms of organic life—the forms which some writers have included amongst the causes of Asiatic cholera.

Earth is the great assimilator and neutraliser of all decaying organised matter ; it incorporates the organic elemen s with itself, and renders them useful for the nourishment of living vegetation. It is through the medium of the earth that the entire cycle of life and decay is completed. Such are the most important points extracted from the Madras report, which well deserves a careful perusal by all sanitarians.

The difficulties of attempting any other than the dry-earth conservancy system at Wimbledon with any hope of success would be chiefly the very limited space available, and the want of a suitable position for receiving any water-sewage which might be established to bear off the excreta. No doubt that last year the arrangements for carrying out the earth-closet system were not quite so perfect occasionally as could be wished, which will be rectified this year. I have ventured to advise that besides the precautions to secure absolute dryness of the earth used, and frequent application of it, it should also be mixed with a proportion of freshly burnt lime, about one part to four of earth, from which mixture I am induced to anticipate a more perfect sanitary result. I also intend to recommend that M'Dougall's powder should be employed for the use of the urinals.—*Lancet, July* 3, 1869, *p.* 7.

143.—ON IRITIS.

By J. Soelberg Wells, Esq., Prof. of Ophthalmology in King's College, Ophthalmic Surgeon to King's College Hospital, and Assistant-Surgeon to the London Ophthalmic Hospital.

Although we may distinguish four different forms of iritis—namely, the simple, the serious, the parenchymatous, and the syphilitic,—there are certain symptoms more or less common to all of them. Thus, there is generally some conjunctival and subconjunctival injection, the latter giving rise to the rosy zone of small parallel vessels round the cornea. The eyelids are perhaps swollen, red, and puffy; and there may be a considerable amount of serous chemosis surrounding the cornea. The degree of photophobia and lachrymation is very variable. The same is the case with the pain, which, especially at the outset, may be but slight, but is more frequently severe, assuming a sharp lancinating character, being situated deep in the eye, and extending thence to the forehead and side of the nose (ciliary neuralgia); indeed there is often great neuralgia of the branches of the fifth nerve. In pure, uncomplicated iritis, the eyeball is but slightly sensitive to the touch; hence, if sharp pain is caused when the ciliary region is pressed by the tip of the finger, it is always a sign of the coexistence of inflammation of the ciliary body (cyclitis). The iris is somewhat dull, lack-lustre, and discoloured, which is partly due to hyperæmia and partly to an effusion into its structure; on account of this effusion and the hypertrophy of the connective tissue, the fibrillæ of the iris are also indistinct and blurred. The pupil is generally sluggish and contracted. Its edge is perhaps irregular, and tied down by small beads of lymph to the anterior capsule, these adhesions being termed "posterior synechiæ." They may exist only at certain points, or may occupy the whole circumference of the pupil, leaving its area clear. This is called "annular, or "circular" synechia, or "exclusion" of the pupil. Generally, however, there is some lymph effused into the area of the pupil: this may be only a thin film; or a thick, firm nodule may completely block up the pupil, when it is termed "occlusion" of the pupil. But the effusion is not always confined to the area and margin of the pupil, but may extend back along the posterior surface of the iris, gluing this firmly to the capsule. It is important to remember this fact in performing iridectomy for iritis or irido-choroiditis. The lymph may also occupy the surface of the iris, covering it like a thin film, or appearing in the form of small nodules or buttons: it often mixes with the aqueous humour, rendering this turbid; or it sinks down to the bottom of the anterior chamber as an hypopyon; or, again, it may become precipitated on the posterior surface of the cornea, and give rise to small punctated opacities. The sight is more or less impaired, which may be due to cloudiness of the cornea, of the aqueous humour, or of the area of the pupil. But if it is greatly deteriorated and these parts are tolerably clear, we must suspect the co-existence of an inflammation of the ciliary body or choroid, accompanied by opacity of the vitreous humour, &c. In pure iritis the eye-tension and the field of vision are normal, although the latter may be perhaps somewhat contracted on account of the smallness of the pupil and the synechiæ.

The first patient, B. W., aged 34, presents in his left eye the symptoms of *simple recurrent iritis.* The inflammatory symptoms are but very slight; the lids are normal, there is but a faint conjunctival and subconjunctival injection, but very little photophobia, and no pain or lachrymation. He reads No. 1 of Jaeger. On close inspection, we notice that the iris is slightly discoloured, and the pupil partially occupied by a thin film of lymph; but, on the application of atropine, it dilates very irregularly, and several firm and tolerably broad synechiæ spring into view. The eye-tension and the field of vision are perfectly normal. He had an attack of iritis in this eye in 1863; but was quite free from it till about a fortnight ago, when he caught cold, and the present inflammation supervened. The treatment indicated is the instillation of a strong solution of atropine, in the hopes of tearing through some of the adhesions; but if considerable synechiæ remain, and the disease shows a disposition to recur, I should should strongly advise an iridectomy.

Serous iritis is chiefly distinguished by the tendency to hypersecretion of the aqueous humour and the deposition of particles of lymph on the posterior surface of the cornea, perhaps in a circular group opposite the pupil or in the form of a pyramid, the base being formed by the larger nodules, which gravitate downwards. The aqueous humour is generally somewhat turbid, this varying often considerably in the course of a few hours. The posterior synechiæ are, as a rule, but few in number, and not very firm or broad. The anterior chamber is increased in depth, and the pupil is often somewhat dilated, which is due to an increase in the intraocular tension. The degree of the latter should, therefore, be frequently examined; for this serous inflammation shows a tendency to extend to the ciliary body and choroid, which is accompanied by hypersecretion and cloudiness of the vitreous humour, increase in the eye-tension, great diminution of sight, and contraction of the visual field. The symptoms of serous irido-choroiditis are well shown in the next patient.

H. D., aged 15. His eyes have been affected for some months; and you observe in both that the anterior chamber is rather deep, the aqueous humour somewhat clouded, and numerous punctated opacities are strewn over the posterior surface of the cornea, and arranged somewhat pyramidally. A few posterior synechiæ existed in the right eye, but they have yielded to atropine; and this pupil is circular. In the left eye some synechiæ are still remaining. So far the disease shows only the symptoms of serous iritis; but, on further examination, we find that the vitreous humour is somewhat hazy, showing both floating and fixed opacities. At one time these were very considerable, and caused great impairment of vision; but the vitreous has lately cleared very much, and the sight has improved correspondingly. Although the eye-tension has been somewhat increased, especially in the left eye, this was not considerable; and as the deterioration of sight corresponded to the cloudiness of the media, and the visual field remained good, there was no call for operative interference. The sight is now so good that he can read (with the aid of a convex lens to neutralise the effect of the atropine) words of No. 1 with the left eye, and of No. 2 with the right. The boy is delicate, and somewhat strumous; but there is no trace of hereditary syphilis. The treatment has consisted in the continued use of atropine, an occasional blister behind the ears, and the administration of quinine and steel, together with a generous diet.

Parenchymatous or suppurative iritis is principally characterised by a plastic exudation into the parenchyma of the iris, as well as at the edge of the pupil and in its area. The fibrillæ of the iris become much thickened and swollen, its anterior surface hazy and indistinct, which is due to the effusion of lymph, which may appear only as a thin veil or assume a more purulent character, little yellow nodules (which must not, however be mistaken for syphilitic buttons) being strewn about on the surface of the iris. The aqueous humour becomes turbid from the admixture of lymph and pus, which may sink down and produce hypopyon. The posterior synechiæ are broad and firm, and the pupil is often blocked up by a thick nodule of lymph. From the great impediment in the circulation of the iris, numerous dilated veins may be observed on its surface. Suppurative iritis is not unfrequently accompanied by a similar inflammation of the ciliary body and choroid.

Syphilitic iritis generally assumes a suppurative character, and is, moreover, specially characterised by two peculiarities—viz, the often somewhat partial character of the inflammation, and the appearance of tuberculous nodules or condylomata (gummy tubercles of Virchow) scattered about singly over a part or the whole of the iris. They are embedded deeply in the parenchyma, being developed from the connective tissue. As they increase in size, they push aside the fibrillæ, and sprout further and further into the anterior chamber. Although the presence of the tubercles may be taken as a sure indication of the syphilitic origin of the iritis, you must remember that iritis due to syphilis very frequently does not assume this character, but appears in the simple or parenchymatous form. This has occurred in the third patient, in whom the iritis, which was due to syphilis, showed itself only as a tolerably mild form of parenchymatous iritis.

Amongst the various causes of iritis must be especially mentioned rheumatism; exposure to cold winds, damp, &c.; syphilis; and wounds and injuries of the eye. Traumatic iritis often assumes the parenchymatous or suppurative form, and occasionally the serous. Iritis may also supervene secondarily upon an inflammation of other tissues of the eye.

With regard to the treatment, I would strongly insist upon the extreme importance of widely dilating the pupil by atropine as soon as possible. Thus the chief danger—the formation of thick, firm, posterior synechiæ—is obviated; for these synechiæ are the most fruitful source of obstinate recurrent iritis, and are often also the cause of the extension of the inflammation to the ciliary body and choroid. Moreover, the dilatation affords rest to the inflamed muscular tissue of the iris; the tension and congestion of the eye are diminished, and the ciliary neuralgia relieved. In a healthy eye an extremely weak solution of atropine will suffice to produce wide dilatation; but in iritis a strong solution (four grains to the ounce) is necessary; for on account of the inflammatory swelling of the tissue of the iris, and of the effusion of lymph amongst it fibrillæ, great resistance is offered to the action of the atropine. I generally direct the patient to apply the strong solution at an interval of five minutes for half an hour at a time, to be repeated two or three times daily, until wide dilatation is obtained, or the effect is negative. But sometimes no effect is produced until the inflammatory irritation and the eye-tension have been relieved by leeches or paracentesis. If the pupil is tied down by firm, unyielding synechiæ, atropine should be only used in moderation, for the purpose of soothing the eye. Should it subsequently cause irritation or conjunctivitis, a mild astringent or belladonna collyrium (extract of belladonna, half a drachm, to two ounces of distilled water) should be substituted. If the ciliary neuralgia is severe, leeches should be applied to the temple, and hot poppy or laudanum fomentations to the eye; and if the pain does not yield, a subcutaneous injection of morphia should be administered. Mercury need only be given if there is a very considerable exudation of lymph at the edge of the pupil, on the surface of the iris, or into the anterior chamber; or if there is a syphilitic taint, and the disease assumes a specific character. I prefer inunction to the administration of mercury by the mouth, and generally prescribe from half a drachm to a drachm of the mercurial ointment, to be rubbed in two or three times daily. The constant application of hot-water compresses to the eye often causes rapid absorption of the tubercles in the iris and of an hypopyon; but as they have to be continued without intermission day and night, few patients can or will submit to the trouble and inconvenience. In obstinate syphilitic iritis great benefit is also experienced from the administration of large doses of iodide of potassium. If the hypopyon is considerable, paracentesis must be performed, and if necessary repeated perhaps several times. But if the iritis is very severe and obstinate, resisting all remedies, more especially if there are firm and extensive synechiæ, if the pupil is occluded, or the tension markedly increased, it is best to perform iridectomy at once, for this often affords the most striking benefit. In serous iritis the free action of the skin and kidneys should be maintained, and atropine should be applied, together with a suppurating blister behind the ear. If symptoms of a glaucomatous nature supervene, paracentesis may be tried; but if it does not suffice, no time must be lost in performing iridectomy. In rheumatic iritis, the administration of the oil of turpentine, as first recommended by Dr. Carmichael, often proves very efficacious, although it is apt to produce derangement of the stomach.—*Lancet, Sept.* 18, 1869, *p.* 399.

144.—CASES ILLUSTRATING THE EMPLOYMENT OF CHLORAL HYDRATE IN THE TREATMENT OF DELIRIUM TREMENS.

Under the care of J. H. Barnes, Esq., at the Liverpool Workhouse Hospital.

In considering the history of these ten cases, it will be at once evident that chloral, like most other remedies, varies very considerably in its action with various constitutions. While in one case thirty grains were sufficient to compose and give a night's sleep to a most excited and sleepless patient, in another case seventy grains produced no effect, while in yet another ninety grains procured a sleep of only two hours' duration. In all the cases where it was effectual in its operation, sleep was produced very rapidly, ranging from a period of fifteen minutes to two hours. In none of the cases was there that perfect composure and firmness of muscle noticeable after the sleep produced by half-ounce doses of the tincture of digitalis. In most of the cases slight congestion of the eye and face, and slight perspiration, were visible; while there was an absence of any disturbance at all attributable to the drug. Ten to twenty grain doses have been advocated as sufficient for delirium tremens cases, but from his own experience Mr. Barnes is disposed to consider sixty grains the minimum dose, and that any sleep that may have occurred after the smaller doses must have been simply that which so frequently comes to the relief of this class of patients *without* the aid of medicaments.

In this remedy, though we have not an altogether perfectly reliable agent, we have one, as far as experience points, capable of procuring, in *most* cases, a very *rapid* and *peaceful* state of sleep, and capable of administration without trouble or danger in exact definite quantities.

Case 1.—J. F., aged 47, was found in the rigging of a ship in the Queen's Dock, and was with the greatest difficulty got down. He was excited and raving. On October 22nd, at 2.10 p.m., seventy grains of chloral were given, but produced not the slightest effect. Being still violent and noisy on the 23rd, he was given four drachms of tincture of digitalis at 12 p.m.; fell asleep in half an hour, and slept more or less the whole night. On awaking he was quiet and rational.

Case 2.—J. B., aged 28, a barman, said to have been drinking heavily, was admitted Oct. 22nd in an excited condition; would not keep in bed. He was given, at 2 p.m., sixty grains of chloral. Slept at 9 a.m. on the 23rd, and was quiet till noon. Another sixty grains of chloral was given at 3 p.m. Patient fell asleep at 3.15, and awoke at 4.45. He was quiet all night. On examination next morning there were evidences of typhus, and the patient was sent to the Fever Hospital.

Case 3.—J. J., aged 39, was excited and restless; would not keep in bed, being under the impression that people were going to injure him; tremulous and weak. On October 23rd, at 2.10 p.m., he was given sixty grains of chloral; was slightly affected, but did not sleep. At 8 p.m., sixty grains more were given; he then fell asleep at 8.35, and slept till 6 the following morning; awoke rather excited, but slept again till 9 a.m., when he awoke rational and quiet.

Case 4.—R. B., aged 40, admitted in an excited state, it taking five persons to control him, as he was not only violent, but very large and muscular. On Oct. 31st he was given sixty grains of chloral at 1.40 p.m.; he fell asleep at 2, and slept till 4, when he awoke excited. He vomited the first thing the next morning, and once afterwards. On the 2nd November, at 2.15, ninety grains of chloral were administered, which caused him to sleep in fifteen minutes, the last sleep lasting two hours, and being followed by another shorter sleep. While asleep, his breathing was as placid as an infant's; the eyelids could be raised with the finger, and the pupils were seen to be contracted; on placing the finger between the lids there was spasmodic contraction. Face flushed.

Case 5.—W. J., aged 37, was admitted, and during the whole of the first night would not keep in bed, but was greatly excited. On Nov. 7th he was given eighty grains of chloral. Patient went to sleep in fifteen minutes, and slept all night. On the 8th he was quiet and rational.

Case 6.—M. M., aged 38, admitted to the asylum on Sept. 28th, 1869, for third attack of delirium tremens within a short time. Patient was pale, restless, and excited, did not sleep the whole night, or keep his bed; tremulous, with a pulse 130 per minute. On the 29th he was given thirty grains of chloral in half an ounce of water. He had a quiet night, and was rational and composed next day.

Case 7.—T. K., aged 30, was sleepless and very excited, with a pulse at 136. Kept making efforts to escape, under the delusion that people were trying to injure him. On Sept. 30th he was given twenty-five grains of chloral, which produced no effect. On Oct. 1st forty grains more were administered, which quickly induced sleep, lasting the night through. After the dose, the patient's face was flushed, and the body moist. There was no sickness, and on awaking he had acquired calmness and consciousness, but was slightly tremulous.

Case 8.—M. G., aged 24, admitted Oct. 9th, 1869, in a violent and excited state; would not keep in bed. Forty grains of chloral were administered in water, which rendered the patient quieter, producing a flushed face and perspiration, but no sleep. On the 11th he was given sixty grains of chloral at 2 p.m. He fell asleep at 3 p.m., and awoke at 6 p.m., sleeping again from 2 a.m. till 4 a.m. The face and eyes were congested, and the patient, on awaking, was noisy and excited. On the 12th, sixty grains more of chloral were administered at 12 40 p.m., sleep supervening at 2.40 p.m., and lasting some three hours. Patient was still excited and noisy on awaking, but gradually became quieter, and was discharged well.

Case 9.—E. P., aged 24, was admitted on October 21st, at 6 a.m., in a very excited and restless condition; struggled violently with the attendants, under the impression that they and others were going to kill him. At 1.30 p.m., sixty grains of chloral were given, and he fell asleep at 1.55 p.m., woke at 3 45 p.m., slept again at 5.10 p.m., and was asleep most of the night. There was slight perspiration and flushing of the eyes and face, but no sickness.

Case 10.—J. M. D., aged 35, was admitted on Oct. 21st, sleepless, excited, and very shaky. At 2 p.m., sixty grains of chloral were given. Sleep commenced at 2.30, and with slight intervals continued all the afternoon and night. On the 27th, not having slept well the previous night, patient took sixty grains of chloral at 8 p.m. He fell asleep at 10 p.m., and awoke at 5 a.m. There was no sickness, flushing of the face, or perspiration.—*Lancet, Nov.* 27, 1869, *p.* 741.

145.—ON TONICS IN THE TREATMENT OF CHRONIC BRONCHITIS AND EMPHYSEMA.

By Dr. John C. Thorowgood, Assistant-Physician to the Hospital for Diseases of the Chest, Victoria Park.

Although there is no lack in our materia medica of medicines reputed excellent for chronic bronchitis, emphysema, and those asthma-like difficulties in the breathing consequent upon these two complaints, still the undoubted fact remains that these chronic lung affections are exceedingly obstinate and hard to cure; they give way perhaps for a time under the influence of some new remedy, but it is only to return again as bad as ever, to the distress of the patient and disappointment of the doctor.

It is among those who are getting somewhat into years that we find the most numerous and marked examples of chronic bronchitis, with more or less pulmonary emphysema; and these patients, always more or less dyspnœic, are often liable to attacks of difficulty in their breathing, which they call asthma, and which at times—as, for instance, after a prolonged burst of coughing—have all the characters of true spasmodic asthma, and are, like it, due to a cramp-like closure of the bronchial muscle, resulting from the violent expiratory effort of the cough.

The general and more abiding breath difficulties of these cases of old-standing bronchitic emphysema appear, however, to be rather of a paralytic than of a spasmodic nature, and are due partly to some degree of defective primary innervation through the vagus, but more especially to impaired nutrition of the dilated air-vesicles and loss of contractile force in the bronchial muscle.

The two most common causes of this morbid state of lung are repeated attacks of chronic bronchitis, or inveterate and incurable asthma. Both these affections usually result in emphysema, with thinned and degenerative air-vesicles; and the latter, by the fits of severe spasm to which it so constantly subjects the bronchial muscle, especially tends to exhaust its nervous irritability and greatly to impair its contractile power.

It is when these evil conditions are thus developed that we find the expiration so prolonged and imperfect. It seems as if the sufferers were unable to expire sufficiently to get a proper renewal of the air pent up in their lungs, and hence arises much of their discomfort.

In a typical and aggravated case of bronchitic emphysema, resulting from asthma of twenty-five years' standing, the patient remarked to me on the agreeable feeling of relief that followed percussion of the chest, just as if the stagnant air had been thus mechanically forced out of his chest and fresh air enabled to enter in its place.

It is not long since I saw a veteran member of our profession who presented well-marked symptoms of emphysema and chronic bronchitis, and who, alluding to the fits of dyspnœa which for many years had so sorely tried him, said to me, "It is not the getting air *into* my chest, it is getting *out* that I find so difficult."

We know that the morbid anatomy of these cases shows us greatly dilated air-vesicles with very thin walls. In a measure, the degenerating human lung comes to resemble the lung of a reptile; where, as in the turtle, the air-cells are very large, and after the lung has been gradually inflated, it is slowly emptied of the air, which issues through the glottis with a prolonged hissing sound characteristic of animals of the reptile class.

The peculiar kind of asthma which has been described by Wunderlich as gradually increasing upon the patient for days, till his chest is in a state of extreme distension, with heart and liver pushed downwards into the abdomen, appears to me an example of this same kind of dyspnœa due to loss of contractile power in the pulmonary tissue, and likely to be associated with serious emphysema and degeneration of the walls of the pulmonary vesicles.

It would be foreign to the purpose of this paper to enter more minutely into the morbid anatomy of chronic bronchitis and emphysema, or to go further into the physical signs of these diseases than is necessary for illustrating points in the treatment. I may, however, remind the reader that, under effective treatment, the actual rarefaction and air-distension of the lung-substance can be demonstrably reduced, the morbid clearness on percussion may be lessened, and the quantum of respiration improved. As lung-distension diminishes in this way, it has been pointed out by Dr. Walshe how the area of the heart's superficial dulness perceptibly increases; and all this good may be attained by the removal of bronchitis.

Undoubtedly this is very satisfactory, so far as it goes; but, from what I have observed of the progress of these chronic bronchial disorders, I am inclined to think that, in our persistent efforts with various antispasmodics and sedatives to ease the breath and cure the cough, we lose sight of those atrophic and degenerative tissue-changes which underlie the symptoms we treat, and for a time, perhaps, are fortunate enough to cure. In the instances of medical men of years and experience for whom I have had to prescribe, I have been struck to observe how persistently they have been using all manner of expectorants and sedatives, and the distrust they felt of any such tonic as iron, bark, or quinine. Among the ordinary public I have more than once been told by patients who for years had suffered in the way described, that I must not prescribe a tonic, or that iron is sure not to suit them; and yet, so far as I have been able to see from their voluminous prescriptions, I have not found that any tonic has ever been given. What it is that makes these patients so averse to a tonic remedy I have not yet found out, though for years I have been aware of the fact. One patient who was very particular in laying down the law on this subject, owned to deriving more benefit from nux vomica and phosphoric acid than from anything else; and I have learned recently that my old medical friend, to whom I recommended iron with nux vomica, is able to speak most favourably of the treatment. These two medicines—iron and nux vomica,—or else strychnine in small doses, seem to me specially beneficial where there is constant dyspnœa with prolonged expiration. The presence of expectoration and of occasional fits of severe nocturnal asthma is no drawback to their administration; and not infrequently the nux vomica will relieve these spasmodic attacks most effectually. Another medicine that is of great service, and that appears to promote nutrition, is arsenic. At times this drug will act quite like a specific in improving the breathing, as, for example, in the following case :—

Mrs. G——, aged 50, seen July 7th, 1864, at Victoria-park Hospital. She has been three months under medical treatment; but still complains of difficulty in breathing, attacks of asthma at night, much cough, with profuse yellow expectoration. Chest extra resonant, with feeble breathing, and bronchial râles; heart healthy; much sickness at stomach, and vomiting. Ordered two drops of Fowler's solution, in alkaline infusion of calumba, three times daily.

In one week she came to say that cough and spitting had ceased, as had also the sickness; and she was soon well. On May 27th, 1867, I saw her in perfect health.

The quantity of expectorant medicine this patient had taken was remarkable, and I believe it was the stoppage of this that certainly had something to do with the complete cure that resulted. Where iron is employed as a remedy, the tincture appears a very good preparation, and will go well with a saline such as the muriate of ammonia; or we may give the sulphate of iron with sulphate of magnesia in mint-water. As it is often desirable to maintain the action of the iron in small doses for some time, it is best not to give any form of ether with it, for this will cause dryness of the mouth, and render the patient averse to the continuance of the remedy. In the case of a man aged 63, with bronchitic emphysema, and whose father died of asthma, the sulphate of iron given as above soon enabled him to lie down at night, stopped his cough, and in fact cured him, with the sole addition of five grains of compound squill pill every night for a week.—*Lancet, Nov.* 13, 1869, *p.* 668.

146.—CASE OF ILEUS RELIEVED BY INFLATION.

By Dr. George Whyte, Elgin.

The following case of obstruction of the bowels may be of interest as showing the value of "inflation" for the relief of this very fatal disease. The remedy itself is as old as Hippocrates, and very easily administered. I was sent for on November 18th last to see a married woman, of about 40 years of age, who was suffering from obstruction of the bowels. On the 16th she had taken ℥j. magnes. sulph., but without relief. She afterwards had an enema administered by a midwife, but this came away in a short time almost clean. When I saw the patient she was complaining of severe pain over the abdomen, which was swollen and tympanitic. The pain, she said, began below and to the right of the umbilicus some days before she took the "salts."

She put her finger at once on this spot, as it was more acutely painful than the rest of the abdomen. She had been vomiting a good deal, the matter brought up being stercoral, and she was still very much nauseated. The tongue was furred, brown, and dry ; pulse small and quick ; the urine was freely secreted. I ordered at once a large enema to be thrown up slowly. This found a ready passage, but in a very short time came away clean. During the day she got other two, one of which contained croton oil, but neither had any effect in relieving the obstruction. On the contrary, she gradually got worse, the pain greatly increasing and the vomiting becoming incessant and stercoral. One grain of solid opium was ordered every hour till the pain was relieved, and large warm poultices to be constantly applied to the abdomen.

November 19. Feels easier, but is still vomiting stercoral matter. Very weak and anxious-looking ; pulse small and quick. Another large enema was given, but without affording the slightest relief. I afterwards introduced a long tube into the rectum as far up as I could, and, having connected it with a small hand bellows, very slowly inflated the bowels, every now and then kneading the abdomen with my hands. The operation caused a good deal of pain, but I continued till the abdomen was quite hard, and the patient began to vomit severely, putting up along with the matters quantities of wind. On removing the tube she expressed herself as being much relieved, and in a very short time she had a free liquid evacuation. The vomiting and pain ceased, and she made a rapid and complete recovery.—*Medical Times and Gazette, Nov.* 27, 1869, *p.* 622.

147.—THE AIR WE BREATHE.

By the Editor of the Medical Times and Gazette.

Under the title "Town Air and Country Air" we had occasion to refer to the fact that the inhabitants of unhealthy towns and the occupants of ill-ventilated dwellings do not suffer from deficiency of oxygen in the air they breathe, or from accumulation of carbonic acid, but from the presence of minute traces of impurities in the atmosphere by which they are surrounded. This fact (a most fundamental one, and although obvious enough to chemists who have turned their attention to the chemistry of the atmosphere) bears an appearance of novelty, and requires to have a little light thrown upon it. Many persons will regard it, at first sight, as opposed to the plainest and most elementary facts of chemical science. After the great discovery towards the end of the last century that the atmosphere consists almost entirely of nitrogen and oxygen gases, and that, by combustion and respiration, oxygen is taken from the air and carbonic acid added to it, nothing could be more natural than to suppose that the atmosphere in favoured localities would be found to be rich in oxygen and comparatively destitute of carbonic acid. Many of the earliest analyses of air taken from different parts of the country were, curiously enough, made by a fallacious process, and did actually lead scientific men to believe in the occurrence of great differences in the constitution of the atmosphere in different localities. The method adopted by Priestley for the analysis of the air was the absorption of the oxygen by means of binoxide of nitrogen and water—a process which is indeed capable of yielding tolerably accurate results when carried out properly, but which is liable to sources of error which were very imperfectly understood in Priestley's time. Accordingly, some 60 years ago it did actually seem to be a fact, vouched for by experiment and theory, that a close and unhealthy atmosphere, such as was often met with, was an atmosphere very deficient in oxygen, and very much contaminated by carbonic acid. Although the experimental bases upon which this conclusion rested have been long ago destroyed, yet, nevertheless, the belief survives even to this day in the form of a popular error, but as an error shared by very many well-informed persons. For many years past it has been universally accepted by chemists as a thoroughly well-established fact that, whether a specimen of air be taken at the top of a high mountain or down in a valley, or whether it be taken from the middle of a continent or from the surface of the sea in the middle of the ocean, there is hardly any variation in the relative quantities of oxygen and nitrogen contained by it. The percentage of carbonic acid occurring naturally in the atmospheric air in these so vastly different localities is also recognised to be never more than a mere trace. All this is at the present day known and admitted by every chemist. But the investigation has been pushed further, and chemists are in possession of experimental data—ample in quantity and of unquestioned authority, although strangely rather lost sight of—proving that in like manner there is no great difference in the relative proportions of oxygen and nitrogen, and that the carbonic acid is never more than a trace in atmospheric air, whether it be taken in the street of a town or in the open country, or whether it be taken from the interior of a crowded theatre, or from an ill-ventilated dwelling, or from out of doors. In order to convey an adequate idea of the constancy of the atmosphere under these conditions, we will cite the published analyses of Dr. Angus Smith, premising merely that they are corroborated by other and independent observers, as, for instance by Dr. Roscoe, who has made examinations of the carbonic acid contained in the air of close places.

The amount of oxygen contained by 100 parts of air obtained from the undermentioned places is as follows:—

From the sea-shore (Scotland)	20·999
,, summit of the hills	20·98
,, suburbs of Manchester (wet weather)	20·98
do. do.	20·96
,, Manchester (fog and mist)	20·91
,, sitting-room which felt rather close	20·89
,, pit of a theatre 11.30, p.m.	20·74
,, gallery of a theatre, 10.30, p.m.	20·86
,, backs of houses and closets	20·70

The amounts of carbonic acid contained in 100 parts of air were as under:—

From the hills in Scotland	0·0332
,, plain ,,	0·0341
,, surface of Thames in London	0·0343
,, parks and open places in London	0·0301
,, London (average)	0·0341
,, streets of Manchester	0·0403
,, neighbourhood of privies	0·0774
,, worst parts of theatres	0·320

These figures are eloquent. According to them the atmosphere of London does not contain more carbonic acid than the atmosphere of the country in Scotland. Sometimes even the air in the London parks contains a trifle less carbonic acid than the air in Scotland. The air from a Manchester street contains only a trifle more carbonic acid than the air in the country—just about as much more as air in a London park contains less. Even the worst part of the pit of a theatre contains only three parts of carbonic acid in 1000 parts of air. Unless, therefore, carbonic acid be very actively poisonous, we cannot look upon the degree of its accumulation even in the pit of an ill-ventilated theatre as the cause of the closeness of the atmosphere.

Mention has been made of the extreme constancy of the composition of the atmosphere. The air on the open heath or on the seashore contains 20·999 per cent. of oxygen (by volume), the air of a close sitting-room 20·89 per cent., and that of the pit of a crowded theatre 20·70 per cent. of oxygen. In like manner fresh country air contains 0·03 to 0·04 per cent. (by volume) of carbonic acid, and the worst air in a theatre 0·32 per cent. of carbonic acid. The question very naturally arises how is it that, notwithstanding the consumption of oxygen and production of carbonic acid by the processes of respiration and combustion, there is so very slight a change in the atmosphere of a crowded room? The reply is that the cubic capacity of a room, and consequently the amount of air in it, is very vast in comparison with the actual quantities of oxygen consumed by respiration and by the combustion of the gas used for illumination. If the amount of atmospheric air required to fill any of the theatres be calculated and the quantity of oxygen consumed by the respiration of the audience, using known data for the calculation, it will be found that in three hours there cannot be a consumption of oxygen which is of sufficient magnitude to lower the percentage of that gas in the atmosphere very much below the number actually observed. In making this calculation it may be assumed that there is no ventilation whatsoever, and that the theatre once filled with air remains hermetically closed for the whole three hours. In the actual case, however, the possibility of effecting a change in the composition of the atmosphere of a building is still further diminished by the effect of currents of air and of diffusion.

With regard to the possible physiological effect of lowering the percentage of oxygen from 21·00 to 20·70, and of raising that of carbonic acid to 0·30, there are direct experiments showing that the feeling of closeness is not due to this change in composition. If we do nothing to a specimen of air except withdraw this quantity of oxygen and add 0·30 per cent. of *pure* carbonic acid, the specimen of air will not become close and disagreeable, and may be breathed for a time without any unpleasant sensations. The air to which the workmen in some soda-water works are exposed is often quite fresh and yet highly charged with carbonic acid. It is only when the process of discharging carbonic acid into the atmosphere is also a process for discharging other impurities into it that the peculiar closeness with which all persons are so familiar arises. Although, however, carbonic acid does not occasion the closeness of ill-ventilated rooms, still the experiments of Dr. Angus Smith appear to show that the presence of this gas in abnormal quantities does produce a depressing effect on the human subject, manifesting itself by a diminution of the pulse and an increase in the frequency of the inspirations. To produce these effects it seems to be necessary to have at least 1·00 per cent. of carbonic acid in the air—a proportion much higher than is actually found in close rooms. Although the evils of ill-ventilation arise neither from deficiency of oxygen nor from accumulation of carbonic acid, but from the discharge of some kind of organic matter into the atmosphere, yet a slight deficiency of oxygen and an increase in the carbonic acid of the atmosphere being associated with this organic matter, we may usefully employ these analytical data as signs of the pollution of the atmosphere. Practically, for reasons which will at once suggest themselves to the chemist, little use is to be made of the slight lowering of the oxygen; but we may very advantageously employ the increase in the carbonic acid, which, although a trifling per centage calculated on the air, is a large per centage calculated on the carbonic acid, and which, moreover, may be observed with very great ease and certainty by the employment of the admirable method introduced by Dalton, and recently improved by Pettenkofer. We will conclude by citing, from a recent paper of Dr. Angus Smith's, some determinations of the carbonic acid in close atmopheres :—

	Percentage of CO_2 (by volume)
London, Strand Theatre, gallery, 10 p.m.	0·101
,, Surrey Theatre, boxes, 10 p.m.	0·111
,, ,, ,, ,, 12 p.m.	0·218
,, Olympic Theatre, 11.30 p.m.	0·0817
,, ,, ,, 11.55 p.m.	0·1014
,, Victoria Theatre, boxes, 10 p.m.	0·126
,, Haymarket Theatre, dress circle, 11.30 p.m.	0·0757
,, City of London Theatre, pit, 11.15 p.m.	0·252
Manchester Theatre Royal, gallery, 10.50 p.m.	0·1358
,, Queen's Theatre, pit	0·1026
A factory in Manchester	0·2860
,, ,,	0·0283
,, ,,	0·2900
,, ,,	0·3000

For comparison we append determinations of the carbonic acid in the air which occupies the streets of London and Manchester :—

London, Cheapside	0·0352
,, ,,	0·0398
,, Newgate-street	0·0413
,, Oxford-street	0·0344
,, top of Monument	0·0380
,, ,, ,,	0·0405
Manchester, Market-street	0·0374
,, Deansgate	0·0578

Accumulation of carbonic acid is a sign of a close atmosphere, though not the cause of the closeness.—*Med. Times and Gazette, Nov.* 20 *and* 27, 1869, *pp.* 600, 627.

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